

**Psychosocial influences on the use and regulation of
mobile phones in high schools. Perspectives from pupils, teachers and
parents, an exploratory case study approach.**

by

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ABSTRACT

Pupil's interests in rapidly changing technology pose threats and opportunities in schools. Threats include the perception that mobile phones are a distraction if brought to school as pupils are able to text each other during lessons. However others see opportunities where mobile phones allow pupils greater freedom and safety, so are needed in school. The present research examines the perspectives of pupils, teachers and parents from two high schools in relation to their experiences of using and regulating mobile phones. Psychological and social (psychosocial) influences on regulation and use of mobile phones are explored.

Three key psychosocial factors were found to influence behaviour in relation to use and regulation of mobile phones: Teaching and Learning; Value Sets; and Availability. Teaching and Learning – whether there were advantages to mobile phones in school and their compatibility with the school and its principles of teaching. Value Sets – personal values in relation to identity and belonging, self knowledge and individual responsibility. Availability – the feeling that individuals are more available because of technology.

The subject area studied is changing rapidly with the introduction of new technology. The study proposes that the relationship between individuals and mobile technology is an evolving one. The study recognises the psychosocial influences on parents, pupils and teachers. Educational psychologists do have knowledge and skills to contribute in relation to modern technology. Key areas include the role of modern

technology within identity and belonging, risk taking behaviours and developmental differences.

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CHAPTER 1: INTRODUCTION

The government commissioned Dr Tanya Byron in 2007 - 2008, to review risks that children face in the digital world. The report (Byron, 2008) makes explicit reference to mobile phones as a growth area of risk for children in the future.

Use of mobile phones within the youth community is increasing with a variety of risks and opportunities (British Education Communications and Technology Agency (BECTA), 2007). Research has highlighted some benefits of the use of mobile phone has had for parents and children (Palen and Hughes, 2007) however research has also shown that the uptake of Information Communication Technology (ICT) in schools has been slow (Younie, 2006).

The present research explores the psychosocial factors which influence both regulation and use of mobile phones in high schools.

The present research explores the impact that increased accessibility to mobile phones as an ICT tool has had on children, schools and families. In particular it examines the broad psychological and social (termed psychosocial) areas which influence the use and regulation of mobile phones. Areas such as the sense of status and extrinsic value of owning and using a mobile phone are explored as well as personal values, sense of belonging and intrinsic motivations such as identity and connectedness.

Technology has the potential to influence aspects of children's development and it is a key area for Psychologists to be involved in. The social and psychological factors in the school environment make it pertinent for Educational Psychologists to be involved.

The present research has been designed to identify common themes across and within schools with regards to the increased use of mobile phones in youth culture. It arose from the following central question:

Is the regulation and use of mobile phones influenced in high schools?

The central question emerged from a study which I conducted for the Children's Workforce Development Council (unpublished) with regards to fixed technology and on-line safety in 2008. One theme which emerged from the young people involved in the study was their changing use of technology from fixed ICT to mobile ICT. Once the central question had been formed, I reviewed the relevant literature and developed substantive, theoretical and methodological aims.

1.1 Specific aims of the study

1.1.1 Substantive aims

To determine factors affecting of use and regulation of mobile phones in high school.

1.1.2 Theoretical aims

To employ psychosocial factors as a framework for investigating the use and regulation of mobile phones in high school.

1.1.3 Methodological aims

To employ an exploratory case study design using questionnaires and semi-structured interviews in order to address the central question.

The specific aims, the central question and the literature review generated many questions which were condensed to two specific research questions. These are:

1. How do psychosocial factors influence the use and regulation of mobile phones in high schools?
2. How do unique cultures in the schools emphasise different psychosocial factors which influence pupils, teachers and parents in their regulation and use of mobile phones?

1.2 Significance of the research

In March 2010 I was involved in several multi-agency meetings which ranged from a child's death through to the strategic overview of anti-terrorism for the county and in each case, the role and use of mobile phones was discussed in relation to high school aged children.

I have noticed, and I do not believe it is because I am more aware of the topic, that professional discussions about ICT have moved from discussions of fixed technologies to discussions of mobile technologies, specifically mobile phones.

This research is therefore at the forefront of development of significant changes in mobile technology which affect youth culture, the family and the school.

My interest has always been in the possibility that psychological and social factors might influence the use and regulation of mobile phones in high schools. My value position is neutral as my interest has been in questioning whether different high schools would be likely to have different influences on children's perceptions of mobile phones. This position shaped the focus of my enquiry.

1.3 Context of the study

Issues in relation to the substantive, theoretical and methodological aims were evident and are addressed in more detail as part of the discussion of the research in chapters 4 and 5. The greatest issue was that there was not a lot of research in this area so an exploratory approach to research was decided to be best. The context of the exploration of the study was carefully chosen. Related literature which was reviewed identified year 10's as a group which used mobile technology in a variety of

ways which is explored further in the literature review (Chapter 2). This meant that the research needed to be conducted in high school.

Within my new 'patch' of schools I had four high schools which were trying to work closer together as a cluster. Although the schools were geographically close in proximity, the types of schools and demographics of intake were very different.

1.4 Overview of chapters

Chapter 1: Introduction

An introduction to the research and its topic area. An overview of structure and content of thesis.

Chapter 2: Literature Review

A review of the literature which contributed to the focus of the research and the development of the research questions. The research in the field of mobile phone technology in schools is limited so the literature is taken from many different areas. The different areas are clearly indicated at the beginning of Chapter 2.

Chapter 3: Methodology

Two research questions are derived from the review of the literature. These are presented in Chapter 3 together with a description and justification of the methodology and methods used to explore the research questions. The chapter describes a pilot study which was conducted and the changes made to data gathering and data analysis as a consequence of the findings. The chapter also presents a chronology of action of the main research conducted in the two high schools.

Chapter 4: Results

The findings of the research following the analysis of the raw data. The chapter presents the evidence found which relates to the two research questions. The first section sets out the psychosocial factors as an influence on the regulation and use of mobile phones and is aimed at providing evidence for research question 1.

The following two sections present the evidence from the case studies in the form of a cross case analysis. To provide evidence to answer and discuss research question 2, psychosocial factors which were found in both cases (replicated) are presented as well as psychosocial factors which were unique to an individual case study.

Chapter 5: Discussion

Exploration of the meaning of the evidence in relation to the two research questions. The strength of the assertions is discussed and alternative possibilities are explored.

Conclusions are drawn and significant implications are discussed. Future directions are presented.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

In recent years, as a full time educational psychologist I have experienced a greater number of children turning off, silencing mobile phones and even reading texts before, during or after individual work with them. Informal and formal discussions with the children about the broad array of Information Communication Technology (ICT) has made it apparent to me that mobile phones (mobile technologies; mobiles) are fast becoming the primary method of communication of choice for children and young people.

Informal and formal discussions with high school staff members have made it apparent that the use and possession of mobile phones on some school premises is not allowed. Unsubstantiated evidence suggests that this has raised a tension in school systems where there are bans on mobile phones which parents find difficult to support and staff feel awkward enforcing.

Whereas parents and children appear keen to own and utilise mobile phones throughout the school day for a variety of purposes, evidence suggests that school establishments (high schools) seem slow to respond to innovations in technology (Selwyn, 2003).

The present study explores the psychological and social factors (termed psychosocial factors for the purpose of the present study) which influence the use and regulation of mobile phones in high schools. The term psychosocial is used to represent factors which are either psychological or social.

The issues about the capabilities of mobiles and the way in which youth culture use them are of considerable concern for schools and society (BECTA, 2006).

The literature in the field of mobile phones is not abundant. Much literature has been published by the government or agencies working on behalf of the government. Primary research sources are somewhat limited. There is research that touches on elements of the focus of the present research (for example: Katz 2002, 2003; Green and Singleton, 2007; Williams and Williams, 2005; Pain, Grundy, Gill, Towner, Sparkes and Hughes, 2005,) however these studies do not specifically address the question of mobile phones in high schools. The literature review is therefore compiled of related literature in the field of ICT, school systems, parents, identity and belonging and a variety of associated ICT and mobile technology fields.

The subtle differences between mobile technology and mobile phones are explored in this chapter. The distinction drawn between the two is that a mobile phone is mobile technology with social communication capacity, however mobile technology does not necessarily have to have communication capabilities (for example a digital camera, an MP3 player, which is short for MPEG 3 which is an acronym for 'Moving Picture Experts Group' or MP4 player).

Individuals' conception of mobile phones will be different. For the purposes of this research the term used is 'mobile phone' which incorporates devices with phone capabilities are also known as: mobiles, mobile technology, mobile phones and mobile Information Communication Technology (ICT) and the ways in which a mobile phone could be used (as well as some possible risks) was presented to participants rather than a definition of a mobile phone (Appendix 1 – Possible functions and risks of a mobile phone).

This chapter aims to outline the literature and is divided into the following sections:

- Introduction

- Educating the networked

- School systems

- Digital development or divide

- Pedagogy, ethics and technology

- Safeguarding or self-guarding

- e-safety

 - Content

 - Culture

 - Contact

- Mobiles, youth culture and the blurring of public and private boundaries

- Identity and Belonging

- Personal values

- Friendship and networking

- Parents

- Summary

Issues which have traditionally been associated with fixed technology (an example being a desk top computer) such as cyberbullying and the risks associated with access to the internet now affect mobile phones. The literature review has therefore been separated into themes which address both fixed and mobile technology.

Fixed technology and mobile phones have 'networking' in common (Tufekci, 2008) so to have greater understanding of mobile phones, the impact of fixed technology in schools and the implications of being 'networked' needs to be explored.

2.2 Educating the networked

In 2005 schools' access to the internet was nearly universal (Livingstone and Bober, 2005). Today, schools are almost continually linked to the internet and networked. The country's national digital infrastructure is continually developing and reliability, affordability, appropriateness, coherence and sustainability are key benefits and improvements outlined by the BECTA (BECTA, 2007a). The experiences that children in schools have of ICT are high and are due to increase (BECTA 2007b).

The development of mobile and fixed technology in schools is beneficial (Younie, 2006); however it is reported that the introduction of technology is constantly battling with pre-existing school cultures (in terms of being too rigid, hierarchical and bureaucratic) to be utilised fully and to be incorporated into a useful and relevant curriculum (Younie, 2006). The introduction of the technology (such as interactive

whiteboards, digital cameras, and internet linked computers) succeeds, but effective inclusion of the technology into day to day school systems by teachers generally fails (Selwyn, 2003; BECTA 2007c).

There is little evidence that schools are completely ICT literate and manage to keep up with the pace of modern technology development (BECTA, 2007c). The desire for professionals to develop ICT discourse, practice and pedagogy, according to BECTA (2007c) has not occurred. The way in which ICT is organised and delivered in schools can still be related to the model from when ICT was first introduced in to schools. This is conceptualised as a single computer on a trolley which relies on a small number of staff or technicians who work with a suite of computers to deliver an ICT curriculum which is detached from and not integral to other curriculum areas (Selwyn, 2003).

Although technology is developing in schools, the cultures established are far from incorporating mobile technologies in to every day teaching (BECTA 2007c). Selwyn (2003) refers to Michael Foucault's work in the twentieth century which described schools, prisons, asylums and hospitals as microcosms of the principles of power. Foucault (1977) argues that schools exert physical, social and ideological control and regulation over the environment to sustain discipline but invariably create docile learners. It is my assertion that mobile phones and technology can be seen as a challenge to power and control with pupils being able to explore a 'virtual environment' that encourages active participation and is not constrained by the school's control and regulation.

In contrast to the concept of all schools creating docile learners, evidence suggests that today's youth are encouraged by the school curriculum to be active participants in their learning (BECTA, 2007c). This can partly be seen through the adoption of the internet for learning in schools. Tufekci (2008) presents an argument based on research over time involving 713 undergraduates, identifying two types of internet users. Tufekci (2008) classified these users as 'Expressive' and 'Instrumental' users. Instrumental users are those, for example, who use the internet for activities such as booking tickets or shopping. Expressive users are those who are active learners who not only seek information and knowledge, but create it via website creation and uploading of information.

Although it could be argued that the undergraduate population is not representative of a high school aged population due to differences in age and education (Rice and Katz, 2003), Tufekci's (2008) research highlighted two types of internet users which supports Selwyn's (2003) argument that not all pupils should be seen as passive learners in relation to the internet.

There is no research into whether the different type of users extends to the high school system or if the different types of use are reflected in mobile phone use however the introduction of fixed technology with networking capabilities into society, youth culture and school systems has created a generation of 'networked' pupils who I believe are likely to be both expressive and instrumental users. The development of technology has placed the individual at the centre of learning (BECTA, 2007c) and schools have had to cope and adapt to this psychological and social change. The

nature and use of the technology is individual, however many of the traditional uses of fixed technologies can be accessed via mobile phones. This raises the question which will be addressed in the study as to the impact of the mobile phone on teaching and learning.

2.3 School systems

Foucault's (1977) description of individual school systems designed to create discipline and 'docile bodies' is pertinent in today's society. Some of the same structures and strategies that Foucault described apply to schools. He writes about the need for ranking children and the role that inspectors of those children had in creating uniformity. Foucault's description may well apply to schools themselves in that they are, amongst other things, ranked by achievement and attainment tables (Department for Education 2010), regulated and inspected.

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(Ofsted, 2010)

In Foucault's terms this risks the schools becoming docile, obedient objects who are over concerned about their place in a rank, not risking anything which might jeopardise that place. I would suggest that unless the inspecting body rate expressive learning through the use of ICT, then school pedagogy in relation to ICT is unlikely to change.

Through examination of national research and evaluation studies of ICT, Younie (2007) found the impact of ICT initiatives on pedagogy to be minimal and progressing inconsistently in schools. Other research has found similar limitations and barriers when addressing the specific concept of ICT development and incorporation into school systems (Lai, Yang, Chen & Chan, 2007).

An international study by Owston (2007) of successful schools which were able to incorporate technology concluded that there were several key factors which improved sustainability of technology innovation. The most significant indicator was teacher support and support from all other key stakeholders (parents, pupils, school administrators). In similar research, James and Jones (2008) found that the role and motivation of the head teacher was important. Interestingly, it was found that factors affecting successful implementation of non-ICT initiatives such as anti-bullying, reading or child safeguarding were no different when applied to ICT initiatives.

Compatibility, relative advantage and observability were three key factors when implementing ICT innovation and are described by Owston (2007) as follows:

‘teachers had to feel comfortable with the pedagogical approach used in the innovation (compatibility); they had to believe that the students were benefiting more from the innovation than past practices (relative advantage); and the recognition that came with the innovation being seen by others tended to motivated teachers to continue with it (observability).’

(Owston, 2007, p. 73)

Implementing ICT innovation and shifting pedagogy with regards to mobile and fixed ICT is evidenced as being difficult to implement and sustain (Younie, 2007). Owston's (2007) three key factors may go some way to explain the reasons for this difficulty and raise questions with regard to the regulation and use of mobile phones in high school.

Mobile technology can have different conceptual values depending on the collective and individual teachers involved. Wishart, Ramsden and McFarlane (2007) conducted a small scale evaluation of 14 male and female Post Graduate Certificate of Education (P.G.C.E.) students at the University of Bristol. The students were participant action researchers in the project which looked at the potential of mobile phone enabled Personal Digital Assistants (PDAs). The study concluded that the trainees using the PDAs found many benefits with the technology. The potential for lifelong learning (definition of lifelong learning was not given in the paper) from the use of mobile technologies, including phones was identified for the P.G.C.E. students. It was recognised that in school environments where the technology was a novelty the ICT caused some distraction. It is possible that, schools or individuals who have been slow to adapt to ICT view this technology as a distraction.

Such novelty may be due to conceptual differences with regards to mobile phones. These differences are likely to exist between those who have grown up with mobile phones (digital natives) and those for whom mobile phones have developed during their life time (digital immigrants), (Prensky, 2001). Evidence suggests that these

different concepts of the mobile phones have created a divide between generations (Williams and Williams, 2005).

2.4 Digital development or divide?

The Byron review (2008) highlighted the generational divide between children and their parents. Byron (2008) linked this divide to a more risk-averse culture which is explored later in section 2.6.

The challenge which schools face is in bridging the digital divide. Until the digital 'native' generation filter into schools as adults, the conceptual gap as to the relevance of mobile phones is likely to remain. Whilst there is this gap, the 'novelty factor' is likely to continue to be an issue in schools. Schools as systems need to bridge the divide and develop their use of ICT which includes the use of mobile phones.

The way a mobile phone is utilised partly depends on the user (Henderson, Taylor and Thomson, 2002; Postmes and Spears, 2002) but also the users' promotion of awareness (Smith, 2002) which requires education and training. The impact on school systems that wider ICT development has had is evident and is likely to continue. School systems have to deal with bridging a psychological gap in knowledge, address social issues such as children's digital exclusion at the same time as keeping the children safe on and off line (BECTA, 2007c).

In a review of the national digital infrastructure by BECTA (2007b) the different levels of development of ICT in schools contributed to perceived divides between the school system and the pupils. Butt and Cebulla (2006) found that different schools were at different levels of ICT integration. As a consequence the conception of a schools' e-maturity was developed and the report states that e-maturity:

‘...indicates the extent to which schools and their teachers make the use of ICT integral to their teaching and planning of teaching activities and provide students access to ICT inside and outside the classroom.’

(Butt and Cebulla 2006)

When BECTA (2007c) measured e-maturity in schools, they found that levels of e-maturity in United Kingdom (UK) schools had improved but the improvement had been slow. The index they used to measure consisted of:

- ICT infrastructure and resources;
- organisational co-ordination of ICT resources; and
- engagement with learners – the use of ICT in a school.

BECTA (2007b) also identified that although pupils had considerable opportunities to access ICT, combinations and mixtures of access, competence and motivation acted as barriers to development.

This means there still remains a digital divide where small numbers of pupils are more excluded than their peers from using ICT (Livingstone, Bober and Helsper 2005). Both voluntary and involuntary reasons for digital exclusion were found to be causes of digital exclusion, these included cost, interest and safety (Livingstone and

Bober, 2005). These causes were also found in a study by Rice and Katz (2008) in relation to both the internet and mobile phone exclusion.

In an attempt to reduce the digital divide, the government is introducing innovations into school systems such as the application of Web 2.0 (the term Web 2.0 is commonly associated with web applications that facilitate interactive information sharing) technologies and use of technology based learning. This means that the boundary between school and home is set to be minimised where pupils and teachers can access school networks remotely. However, it has been found that schools are yet to make significant progress in adopting the technologies (BECTA 2007c). Difficulties in implementing change may relate to individual school pedagogy. It may relate to perceptions of learners as passive users in particular schools, or it may also be linked to concerns about safety of the child and teacher.

E-safety is a developing concept which appears in home and schools. It is defined as:

‘the risks associated with the use of new technologies’
(Barrow and Heywood-Everett 2005, p. 6)

Barrow and Heywood-Everett (2005) conducted a large scale survey of 444 schools (primary and secondary), 30 local authorities. The surveys produced the statistical data which was followed up in telephone interviews with 61 teachers. The study identified the risks associated with new technologies (including specific questions about mobile phones) in schools and outlined six key findings and offered clear

recommendations to address the risks. The six findings highlighted the potential for variances in understanding and ability to cope with e-safety and were:

1. Having a designated Internet Safety Co-ordinator in place *and* having an Acceptable User Policy (AUP) better equips teachers to deal with breaches of e-safety.

(Barrow and Heywood-Everett 2005 p. 6)

2. Some education establishments are not being provided with up-to-date support and advice about e-safety by their Local Education Authority (LEA).

(Barrow and Heywood-Everett, 2005 p. 7)

3. Some education establishments are not being provided with up-to-date support and advice about e-safety by the British Education Communications and Technologies Agency (Becta).

(Barrow and Heywood-Everett, 2005 p. 7)

4. Breaches of e-safety are most likely to occur among older pupils in both Primary and Secondary schools. The most common breach is the viewing of unsuitable online material. However, the research found that where pupils were taught about e-safety, all breaches of e-safety were reduced.

(Barrow and Heywood-Everett, 2005 p. 7)

5. Breaches of e-safety are more likely to occur in educational establishments where pupils are allowed to bring their own personal equipment to the premises (such as laptops, portable storage devices, etc.). In some cases, such as incidents of bullying via mobile phone, breaches are not only more likely to occur, but also occur with greater frequency when mobile phones are allowed on the premises.

(Barrow and Heywood-Everett, 2005 p. 8)

6. Teachers ability to deal with breaches of e-safety varies according to the training and support they receive, the policies and procedures in place in schools and the effectiveness of technical systems.

(Barrow and Heywood-Everett, 2005 p. 8)

As Barrow and Heywood-Everett (2005) found, and as Younie (2007) reiterates, not only do schools need to strengthen policies and procedures to develop e-safety,

reduce the digital divide and keep up with technological development, they also need to bring about pedagogic change.

2.5 Pedagogy, ethics and technology

The literature of pedagogy and ethics is large and this section only aims to highlight the possible issues relevant to technology in schools.

It is argued that differences in fundamental philosophical assumptions such as positivism and constructivism foster different understandings of technology as well as ethics and pedagogy (Jefferies, Carsten-Stahl, and McRobb, 2007). The ways in which teachers relate to pupils are based on the relationships between pedagogy, ethics and technology and on ontological assumptions about the nature of reality.

‘Positivist approaches, perhaps epitomized in education by the classical behaviourist view of learning as conditioned responses (e.g. Skinner, 1938), are based on a realist ontology. This states that the world exists independent of any observer, and that nothing can be treated as real unless it can be measured and described objectively. Constructivist approaches, on the other hand, hold that reality is a construct that cannot be determined independently of the observer. This group of theories can not be seen as a single, coherent approach, since their antecedents are to be found among widely divergent sources from various disciplines.’

(Jefferies et al. 2007 p. 113)

Although writing from a perspective of studying and learning on-line and through ICT, the arguments that Jefferies et al (2007) raise between the issues and tension between pedagogy and technology and the influence that has on ethical positions is

relevant to all ICT which is used to support learning, planning, assessment and other educational needs.

If a given technology is not compatible with the underlying pedagogy or if the pedagogy conflicts with ethical ideas, then it is likely that the purpose of the use of technology, namely to educate, is in danger of not being fulfilled. Closer attention to these issues can thus arguably lead to higher success rates.
(Jefferies et al. p. 123)

Schools that tend to give passive roles to the pupils are not yet making significant use of Web 2.0 technologies, such as social networking websites to support learning (BECTA 2007c). Jefferies et al (2007) concluded that a passive role in learning about ICT is essentially a realist/positivist stance where the assumption is that the world exists independent of any observer and learning is therefore a conditioned response whereby the learner is told how things work and how they should respond.

There is evidence which suggests that pupils wish to be and are developing a much more active role in their development of ICT skills which appears to be stimulated and led by the prevalence of mobile and fixed technology (Henderson et al. 2002; Owston, 2007). Jefferies et al (2007) argue for pedagogy to have a much more constructivist view where reality is a construct that cannot be determined independently of the observer, situating the individual at the centre of the learning experience. This would mean the pupil becoming a more central active participant in their learning.

In allowing pupils to be active participants in their learning, teachers face the challenge of balancing regulation of public and private spheres. The de-regulation of

control of mobile phones may be perceived to be unethical as schools risk failing in their duty to safeguard pupils from many psychological and social risks associated with digital technology. Examples of these risks include cyberbullying, contact from unknown people and financial exploitation (Becta, 2006).

2.6 Safeguarding or self-guarding?

In 2007, BECTA produced a document titled 'safeguarding children online'. In this document it highlights the role of Local Authorities and Local Safeguarding Boards with respect to e-safety (BECTA 2007d). The document highlights the 'staying safe' outcomes of the Every Child Matters Agenda and relates these directly to the context of e-safety. The Government's 'Staying Safe Action Plan 2008' makes explicit reference to the difficulties that mobile phones pose as a new threat to children's safety (Department for Children Schools and Families, 2008b).

There are widespread threats to children. Smith (2002) argued that safety in the main was dedicated to the protection of children from 'mistreatment' as child abuse, and was skewed towards physical and sexual abuse to the exclusion of other forms of harm such as experiences of domestic violence, racism and discrimination. Mobile phones not only have the potential to be used as a tool in sexual and physical abuse, they also pose other threats to children which are outlined within the present literature review (Becta, 2006).

In an evaluative review of group practice in a northern metropolitan borough of England, Harlow and Shardlow (2006) found that social workers expressed the view that other non-social work professionals had a lower tolerance of risk. This may in part be due to lack of exposure to risk and a not being desensitised to it. Other reasons may include a lack of training and understanding of the subject area or proximity and day to day dealings with individual children such that teachers do in schools. Although comments and observations seemed valid, the evaluative review by Harlow and Shardlow lacked depth for interrogation.

It can be implied from the research that if teachers do not believe they understand the technology and are not fully trained in child protection issues, then the thought of pupils in schools having access to mobile phones will be a major concern and threat to the school. This view is supported in the Byron report (Byron, 2008) in relation to pupils and parents. Byron (2008) highlighted that rapid changes in technology have made parents more risk-averse because of not feeling adequately knowledgeable about what to do and how to help their children. Smith's (2002) argument supports parents' and teachers' sensitivities in relation to e-safety and mobile phones and promotes a wider understanding of child protection safeguarding.

The feeling of knowledge inadequacy can also be found in the teacher populations and has been highlighted by Baginsky and Macpherson (2005) who report that thirteen higher education institutions and two thirds of the P.G.C.E. courses in the UK devote less than 2 hours of time to training on child protection. Baginsky and Macpherson handed out a pre-course questionnaire to students which indicated that

most students had little child protection experience prior to their course. Further work revealed that over half of the 1247 students who responded wanted further packs of support to include child protection issues with sections devoted specifically to child protection and the internet.

Studies within the area of safeguarding children has highlighted that there may be significant weaknesses in the training of teachers with relation to child protection (Rossato and Brackenridge, 2009). Smith (2002) constructed a compelling argument based on changes in legislation, national statistics and experience from the 'social world' to extend the remit of child protection to include a responsibility to promote child safety. Improvements in systems were advocated, as a 'leap of faith', where child protection needed reframing to promoting risk awareness and safer behaviour.

safeguarding children should not be seen as a separate activity from promoting their welfare. They are two sides of the same coin. Promoting welfare has a wider, more positive, action centred approach embedded in a philosophy of creating opportunities to enable children to have optimum life chances in adulthood, as well as ensuring they are growing up in circumstances consistent with the provision of safe and effective care.

(Department of Health, 2000 web page unspecified)

There is evidence to show that Smith's (2002) view is still relevant in 2010, in the most recent publication from the Department for Children, Schools and Families similarities in promotion of child welfare can be seen.

The Government defines the term 'safeguarding and promoting the welfare of children' as: 'The process of protecting children from abuse or neglect, preventing impairment of their health and development, and ensuring they are growing up in circumstances consistent with the provision of safe and effective

care that enables children to have optimum life chances and enter adulthood successfully’.

(Department for Children Schools and Families, 2008a)

Promotion of safer behaviour and risk awareness is not exclusive to child protection and social work. Schools and local authorities have been key participants in raising the social awareness of bullying and its psychological impact. Raising awareness of the impact of bullying has achieved modest progress (Samara and Smith, 2008) which is an encouraging sign that policy innovation in school in relation to e-safety, risk awareness and mobile phones could be achieved.

When consideration of the published report into e-safety is taken, it is seen that the variety of technology is allowing children easier access to the world wide web / internet and all the risks associated with that. In 2005, 38% of 1,511 children aged between 9 – 19 (yr old) surveyed had access to the internet via their mobile phone and it can be said that this number is likely to have increased since 2005 which is the most up to date source found (Livingstone and Bober, 2005). E-safety and mobile phones therefore need to be considered in partnership and in relation to the impact they have on psychosocial development and how this influences behaviour.

2.7 e-safety

The use of digital technology (abbreviated in texts with the hyphenation of ‘e’ for example: ‘e-technology’; ‘e-safety’) provides a multitude of educational and social opportunities (BECTA 2006). These opportunities go hand in hand with risks and, as

Livingstone and Bober (2005) point out, the more that children experience one the more they experience of the other. Livingstone and Bober (2005) also found that even the most skilled children fail to avoid risks associated with e-technology. Barrow and Heywood-Everett (2006) also reviewed e-safety experiences in English schools and concluded that the year 10 in high school was one of the most common groups to actively breach e-safety rules.

BECTA (2006) published a document outlining the key risks to children when using ICT which included the fixed technologies such as computers and interactive whiteboards and mobile technologies such as lap tops and mobile phones. Broadly speaking risks can be placed in to one of four categories seen in table 2.1 below.

Table 2.1 Risks associated with using ICT (Becta, 2006)

Content	Contact	Commerce	Culture
Images: <ul style="list-style-type: none"> - Pornographic - Violent - Hateful - Age-inappropriate Sites that encourage dangerous or illegal activities Viruses, adware, spyware Biased racist, sexist or extreme political beliefs	Grooming using communication technologies and services such as: chat rooms; gaming; and social software. Children may provide too much information which may identify them, friends or family. Cyberbullying – bullies can torment their victim day or night.	Financial or commercial consequences. Giving out financial details. Registering for online gambling sites. Spam or junk email promoting offers but aimed at getting information from user. Premium rate services on mobile technology – ring tones, logos and competitions.	Involvement in inappropriate anti-social behaviour of on-line groups. Web 2.0 environment (uploading) – videos, blogs, accounts of daily routine may prompt risks from contact. Plagiarism, copying school work, downloading games or music from file-sharing services. Obsessive behaviour – child spends 'too much time online'.

At present it is difficult to find many studies which research the specific areas outlined within the broad groups of content, contact, commerce and culture. The published research has been found to provide useful but limited data as they often research sensitive topics such as: viewing pornography, cyberbullying, and grooming (Madge and O'Connor, 2002).

The studies into sensitive topics are also difficult to conduct due to the type of data obtained which tend to be online questionnaires. Issues about methodological validity and data reliability are inherent as many participants are self-selecting and those that take part in online questionnaires may consider the risk of being traced too great thus they may not supply 'true' answers. Therefore the studies might not be a true reflection of the extent of the persons' digital behaviour (Peter and Valkenburg, 2007; Tufekci, 2008; Smith, Mahdavi, Carvalho, Fisher, Russell, and Tippett, 2008).

The literature search found no research on risk of commerce, and consequently it has no dedicated sub-section in the present study. The following sub-sections summarise key research in the remaining three of the four identified areas of risk. The following sub-sections are to give the reader sense of the research within the outlined categories and as such not all risks in each category are explored.

2.7.1 Content

One of the largest studies in the field of e-safety was conducted by Livingstone and Bober (2005). The study conducted 1,511 face to face surveys with children and young people aged between 9-19 years old, 906 surveys administered to parents of the 9-17 year olds and a series of focus group interviews.

Table 2.2 Participants, Methods and Key areas studied by Livingstone and Bober (2005)

Participants	Methods	Key areas studied
1,511 children and young people aged between 9-19 9-11 yr old (N=380) 12-15 yr olds (N=605) 16-17 yr olds (N=274) 18-19 yr olds (N=251) Boys (N=668) Girls (N=842)	National survey conducted face to face.	<ul style="list-style-type: none"> - Access inequalities and the digital divide - Undesirable forms of content and contact - Education, informal learning and literacy - Communication, identity and Participation
9 children and young people	Observations focussing on children's use of the internet.	
88 students	27 Focus group interviews in 10 schools across the country.	
906 parents of the participating children and young people	survey	

A mix of both qualitative and quantitative data were analysed to produce the results. Limitations to the study are not clearly acknowledged and some statistical generalisations are made to the whole child population regardless of age when it would be inappropriate to do so.

The study initially identified pornography, spam, advertising and violent/racist content as 4 main areas associated with undesirable content. The actual study focused only on online pornography as the primary concern based on discussions with children and parents and as such the present literature, reviews only pornography as undesirable content.

An example of generalised reporting can be seen from responses to a question about parental estimates of children's negative experiences in seeing pornography. Livingstone and Bober claim that 57% of the children had come into contact with pornography yet only 16% of parents thought that their child had seen pornography on the internet. This is an example of a statistical limitation where the parent sample size for this particular question was smaller than the total number of parent responses in the research. The sample did not include parents of the 18 and 19 year old child participants who did respond to the question (215 of which were included in other question responses). The statistics should not be directly compared as the sample groups are different. If parents of 18 and 19 year olds had of been included, then the percentage of parents who thought that their child had been in contact with pornography might be significantly higher.

When the figures are re-calculated to exclude the responses from the 18 and 19 year old child participants, there is still a difference as reported, but it is less significant. The statistical data which is reported throughout the research is not transparent, however many of the assertions made are backed up by other studies but not to the same statistical extent. The study does, however raise some pertinent questions such as 'What are the causes and consequences of e-exclusion, and how are the trends changing?' The study also provides some excellent recommendations such as highlighting the need to continue to prevent exposure to undesirable content and also in the promotion of educating children about divulging information without realising.

In relation to risk, e-safety and content, the study by Livingstone and Bober (2005) found that more than half (57%) of the children surveyed reported that they had come into contact with online pornography and most of the pornography was viewed unintentionally. 45% of the 18-19 year olds surveyed reported that they thought that they were too young when they were first exposed to pornographic images (Livingstone and Bober, 2005). Barrow and Heywood-Everett (2005) also found that the most common breach of rules in school was that of viewing unsuitable online material. The impact of viewing unsuitable online material as a risk of content has been explored further in this section because of the multiple sources of evidence that it is a current risk (Livingstone and Bober, 2005; Barrow and Heywood-Everett, 2005) and because it is an area which has been well researched.

The psychosocial impact that exposure to inappropriate material has on children and young people should be considered. The short and medium term impact might be

that when unintentional viewing happens, the person is not sure of what to do; how much trouble they will be in; or if they should report it (BECTA, 2007d). However of more concern is when greater exposure to pornographic images has longer term impacts on children and young people.

Peter and Valkenburg (2007) conducted an online survey of 745 Dutch adolescents aged between 13 and 18 years old. Although limited because the study failed to report on different responses by age and made subjective judgements on the notions of 'varied explicitness of sexual content' the study did highlight some significant features and raised questions. The study claimed that exposure to sexually explicit materials in on-line movies (distinction made between DVD/TVs and online) was the only measure quantitatively significantly related to perceptions of women as sex objects. Beliefs were developed hierarchically (the less sexualised the material then children held less sexualised beliefs and the most sexualised the materials had children held greatest sexualised beliefs). This was evident in both males and females.

The study failed to report on any significant trends related to participant age, type of sexualised material and sexualised beliefs, therefore missing out on crucial developmental information during a critical stage in children's lives. The study failed to report on or express opinions on whether sexualised beliefs were a culmination of long term exposure to pornography as a result of viewing the unsuitable material. There was no mention of when beliefs were likely to peak between the ages of 13 – 18. Significant factors (mentioned as 'variables') in child development were

acknowledged (see below) but not explored in great detail as to the influence on children's sexual beliefs as the researchers claimed to account for these in their controlling of variables. These included: sexual experience; pubertal status; age; relationship status; gender; education; socio-economic status; ethnicity; religiosity; and inadvertent exposure to on-line material. It seems that although there are risks to passive and active users (Paasonen, 2006; Jefferies et al, 2007) active risk takers may be more at risk to inappropriate content.

Only one area of the risk of content has been explored and it was chosen because of the reported prevalence of it and because it has been found that children may be inadvertently exposed to this unsolicited unsuitable material for example through emails or pop up windows whilst browsing the internet (Livingstone and Bober, 2005; Peter and Valkenburg, 2007). Research highlights the immediate social and the longer term psychological impact of content of ICT which can also be voluntarily or involuntarily accessed via mobile phones. It is my assertion that similar unsuitable content such as religious intolerance or sites which encourage dangerous or illegal activities may well have an influence on children's beliefs and behaviours. With the increase of web access on mobile phones, the risk of content is increasing (Byron, 2008).

2.7.2 Culture

The risks of culture are influenced by peer groups, so the research findings in this area tend to focus on factors which create groups. These include gender and age. Age is seen as an influence in relation to culture risks. Barrow and Heywood-Everett, (2005) found that primary school year 6 and high school years 10 and 11 more likely to commit the following:

- Plagiarism;
- Intentional viewing of unsuitable material;
- Inappropriate use of mobile phones (with year 10 being the year group with most prevalence of inappropriate use);
- Bullying via mobile phones (with year 10 being the year group when the act of bullying via a mobile phone peaks);
- Bullying via websites, email or chat rooms (more prevalent in year 6); and
- Attempts to breach school security systems.

The culture associated with ICT is predominantly driven by the Web 2.0 environment which encourages active participation in the creation and maintenance of many sites. Common ones include, music sharing websites, Facebook, Friends Reunited, and MySpace. This generates a culture of sharing and interacting with others online. The risks associated with the digital culture spread into all of the other three risk areas that BECTA have identified and also include obsessive behaviour using ICT (Livingstone and Bober, 2005; Akamatsu, Mayer, and Farrelly, 2005; Green and Singleton, 2007).

In Tufekci's (2008) research paper into participation on social networking sites, the term 'grooming' is different from BECTA and CEOP's (Child Exploitation and Online Protection Agency) (2008) definition and is used to describe the act of grooming oneself as:

a means to improve ones reputation and status as well as access to resources and social and practical solidarity.

(Tufekci, 2008 p. 546)

and 'sociality' being the process of gaining social capital as:

figuring out where we and all others stand in relation to each other.

(Tufekci, 2008 p. 546)

Tufekci's (2008) study was based on surveying 713 undergraduate students (age range not specified) in a mid sized research university in the United States of America and holding focus groups with 51 participants. Users and non-users of Social Networking Sites (SNS) were questioned and the study claims that there are a variety of reasons that there are users and non-users of these sites. The study reports that females were 4 or 5 times more likely to use sites than males. This finding was not because SNS users had more friends than non-SNS users. The influences associated with gender differences in the use of digital technology are also found in other studies which have found gender differences in the use of mobile phones (Henderson et al 2002; Green and Singleton, 2007; Smith et al. 2008).

The male – female divide in use of fixed technology and mobile phones exposes different culture risks to genders. Media coverage tends to focus on the risk of social networking culture which may prompt contact from unknown people. It is recognised and supported by Barrow and Heywood-Everett, (2005) that year 9 girls are at most risk to contact with inappropriate persons (often termed 'grooming' in the United Kingdom). Although there are risks associated with culture which are separate to risks of content, it is recognised that the more information that people share and the more time they spend online then the more risks they will be exposed to. One such risk is the risk of contact.

2.7.3 Contact

The risks of contact that children may be exposed and vulnerable to are paramount for members of CEOP (Child Exploitation and Online Protection Centre) as they pose probably the most immediate danger for children. According to figures released by CEOP:

- 5,812 reports have been received by CEOP during a 1 year period between 01/03/07-28/02/08; and
- Approximately 40% of the reports relate to on and off line grooming.
(Child Exploitation On-line Protection Centre, 2008)

The study by Livingstone and Bober (2005) report that:

- 8% of children have met someone offline who they initially engaged with online; and
- 31% of young people have received unwanted sexual comments online or by text message.

(Livingstone and Bober, 2005 p.5)

Unwanted contact does not necessarily come from unknown sources which have been established online. Unwanted comments can come from friends and classmates which can be termed as cyberbullying if they are deemed to be used for the purpose of deliberate upset:

‘Cyberbullying can be defined as the use of Information Technology (ICT), particularly mobile phones and the internet, deliberately to upset someone else.’

(Department for Children, Schools and Families, 2007a. p. 6)

Cyberbullying has existed for as long as the technology has allowed it. It is an ever increasing concern in schools with the introduction of new technologies such as more powerful cameras on mobile phones and smaller and more powerful mobile phones (Mason, 2008). Cyberbullying is different in its form from other forms of bullying because not only can it reach many users instantly, the images and repercussions of bullying by posting images or texts can go to unknown individuals and once distributed are almost impossible to fully retrieve. The act of one bullying incident can therefore go on indefinitely and justify the concern surrounding it (Department for Children Schools and Families, 2007b). The mobile phone is a potential tool to be used in cyberbullying as most phones now have photographic and video functions on them, they are portable and can be used discreetly to capture images.

In a well balanced research article which elicits high school aged pupil's views about risks and strategies in relation to the nature and impact of cyberbullying, Smith et al. (2008) explore and critically analyse the impact and extent of traditional bullying and cyberbullying. The study found that even though children had experienced different

types of bullying, they were more likely to have been involved in other forms of bullying than cyberbullying. This is consistent with claims made by Qing (2007).

Smith et al's (2008) study acknowledged the prevalence of cyberbullying in their sample and asked children what were effective methods of stopping it. Banning mobile phones was not seen as a way of stopping cyberbullying. Children in the study believed that adults who were less informed about mobile phones would have less understanding of the issues associated with mobile phones. This led them to say that they would be less likely to report cyberbullying to adults. In support of greater understanding of cyberbullying and technology issues, Barrow and Heywood-Everett (2006) found that although breaches in e-safety were more likely in schools where pupils were allowed personal equipment, it was a lack of clarity with regards to personal equipment use that was a more likely factor in e-safety breaches.

Smith et al's study revealed that there were increasing numbers of pupils who were reporting cyberbullying. The increased reporting was accounted for by the possibility that the larger audience cyberbullying reaches creates more opportunities to report it, there may be greater awareness of issues, or it might have been that there was a reluctance to have acknowledged cyberbullying in the past (Smith et al. 2008). Taking these points into account, recent studies (Qing, 2006; Juvonen and Gross, 2008) reveal that unlike traditional bullying, the act of cyberbullying is more likely to take place outside of the school however the difference being that the effects of the cyberbullying are likely to be felt in school. For example the act of sending a nasty text may happen outside of school but it may be sent to many people in the school

who re-convene at school. The impact of the bullying then has a stronger and longer lasting impact on the victim (Smith et al., 2008).

Contact as a risk, whether it be cyberbullying or grooming is particularly pertinent for mobile phones. Mobile phones increase and arguably invite contact to the children in a perceived unregulated arena within the physical and time boundaries of a school.

Smith et al. (2008) argue that teachers and parents need to be made aware of mobile phone related issues and supported in their efforts to deal with them. This view reinforces Smith's (2002) view that we need to promote risk awareness and safer behaviour and for children to be active participants not only in their fun use of technology but also in their safe use of technology within the youth culture.

2.8 Mobiles, youth culture and the blurring of public and private boundaries

Mobile technologies are regarded as having the ability to blur public and private boundaries (Selwyn, 2003; Green and Singleton, 2007; Henderson et al, 2002; Ling, 2000). This is at a time when adult status is greatly defined by entering more public domains, institutions and roles such as marriage and work (Henderson et al, 2002; Ling, 2000). Technology allows users to go beyond a fixed sense of time and space and as such mobile phone users can command things to happen around them when they want them. Users can enter different domains when they are physically placed

in what may be a constricted physical space for example the train, school, prison, and bedroom. (Selwyn, 2003; Green and Singleton, 2007; Henderson et al, 2002).

The blurring of these boundaries can mean that a very private space (bedroom) can become public (uploaded on the internet) and a very public place (social networking site) can seem to be private (use on personal mobile). There are inherent risks associated with these conceived realities (Smith et al. 2008; Tufekci, 2008; Peter and Valkenburg, 2007).

The sense of connectedness that the blurring of boundaries elicits can be seen as a risk or an opportunity. Andrews, Kiel, Boyle, and Weerawardena, (2005) conducted an online survey of internet users and found that they were no longer regulated by physical time and space boundaries when using web based retail channels, but by value sets. They found two fundamental value sets which influenced use: intrinsic aspects of how users perceive themselves (personal status); and extrinsic aspects of how others perceive them (social status). Users of mobile technology then are not regulated by where or when they are but by their personal values, a view shared by Green and Singleton (2007) which is explored in more detail in section 2.10.

Studies have identified the following common psychosocial factors which have influences on personal values in the adoption, use and dropout of mobile phones (Selwyn, 2003; Henderson et al, 2002; Green and Singleton, 2007; Smith et al, 2008; Ling, 2000; Rice and Katz 2003; Barrow and Heywood-Everett, 2005). The common, but not exclusive, factors are:

- Location (urban living versus country);
- Gender;
- Class, socio-economic factors;
- Age; and
- Availability to peers.

It is highly relevant to question whether personal values have changed or adapted so greatly that there has been a societal shift to dependency on feeling available or connected. If this is the case adults are coming from a perspective of change whereas children are natives to this society. The cultural and generational barrier between 'us' and 'them' will increase the potency of the mobiles' ability to help children construct an identity which is 'not like them' (adults, teachers) (Selwyn, 2003), whilst maintaining commonality between mobile users and youth culture.

Green and Singleton (2007) held 9 focus groups with 15-25 year olds and claim that individuals need to develop a concept of 'mobile selves' and recognise that mobile phones are socially and emotionally important to young people as they shape aspects of who they are, where they go and what they do.

Mobile phones are becoming an integral part of children's identity which reflects the 'mobile self' where information and communication are instant and where personal values are having greater influence in regulation of behaviours. The role of personal values is inherent in Humanistic Psychology where the concept of values is set within the wider context of an individual's identity. Accordingly, the role that identity has in

youth and school culture needs to be explored to ascertain the potential impact on the individual; school 'community' and society.

2.9 Identity and belonging

Belonging is rooted in the concept of identity (self-actualisation, autonomy, individualisation, authenticity) and Maslow (1999) described it as an end goal and a transitional goal in itself. Maslow (1999) described the transcendence of identity as a rite of passage to adulthood. Henderson et al. (2002) agreed that there is a rite of passage to adulthood but placed the emphasis on external things such as entry into public domains, initiations and roles such as marriage and employment.

Henderson et al. (2002) further agreed that because mobile phones blur the public and private boundaries there was less sense of moving from private to public and consequently from childhood to adulthood. However these public and private boundaries as described by Henderson et al., could be argued to be external representations of an intrinsic shift in development, one which Maslow (1999) described as a development of values. Maslow's (1999) transcendence of identity from childhood to adulthood emphasised the intrinsic values where belonging, identity and personal values were emphasised. As part of this Maslow (1999) proposed that during our development, values are uncovered as well as created.

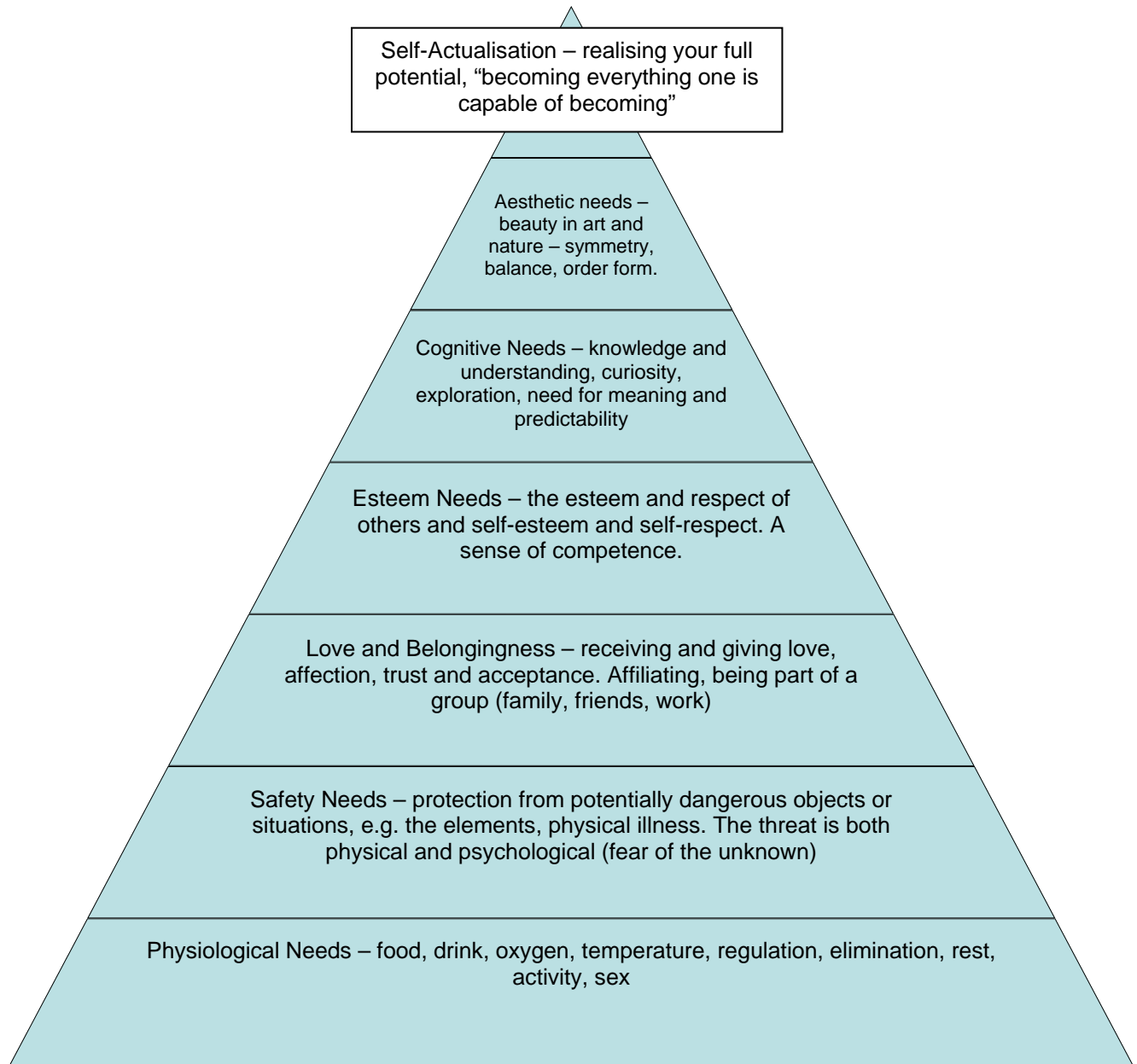
That is, the uncovering, depth therapist can help a patient to discover what deepest most intrinsic values he (the patient) is pursuing obscurely, yearning

for, needing. Therefore I maintain that the right sort of therapy is relevant to the search for values.....I think it possible that we may soon even define therapy as a search for values, because ultimately the search for identity, is, in essence, the search for one's own intrinsic, authentic values.

(Maslow, A. 1999 p. 194)

The values that Maslow describes are represented as a hierarchy of needs.

Figure 2.1 Maslow's Hierarchy of needs (Gross 1992)



The empirical base within the area of identity and belonging is still relatively small compared to other psychological concepts such as cognition and behaviourism. In an article based on practice knowledge, Baumeister and Leary (1995) concluded that there was enough empirical evidence to confirm the hypothesis that belonging can be considered fundamental to human motivation. In relation to Maslow's hierarchy of needs they write that belongingness can almost be as compelling as the need for food. Baumeister and Leary (1995) supplemented their claims with criteria for the need to belong and provided evidence to support two further claims (outlined below) which have implications for mobile phone users:

1. Physical proximity is still important in forming social bonds; and
2. Satiation process limits the number of relationships people seek.

(Baumeister and Leary, 1995)

The school environment has always been a place where children form friendships within physical close proximity and schools foster a sense of belonging (Feigenberg, King, Barr, and Seiman, 2008). The rapid growth of technology has created a challenge to education. Pedagogy has had to respond to psychological, social and community change which has been moved forward on a surge of technological development (Goodenow, 1996). Although relating the pedagogical challenge to the area of further education, Goodenow highlighted the psychological, social and cultural implications of our sense of community and the construction of knowledge. The internet raises questions about whether we are individuals in mind and body (dualism) or autonomous groups which are interconnected (pluralism) in some

synchronous way in community, education and our construction of knowledge. The issue over 'sameness' or 'individuality' is raised.

Furman (1998) argued that modernism's view of community is 'sameness' whereas post-modernist's view of community is a sense of belonging, trust of others and safety.

Sameness, as proposed by Furman (1998) as the modernist's view of community, can have the effect of alienating segments of the population by advocating certain values over others which thus excludes those who do not conform. However, Kune (1992) argues that modernist's view of community is not a precondition for engagement but a reward for compliance and achievement and in this sense is not excluding.

In some domains mobile phones may be seen as a post-modern artefact as they are tools which breed change (Henderson et al., 2002) which, when entered into a modernist community (school) causes conflict of rules, regulations and policy of the school environment. A postmodern concept of community might be this:

Postmodern community is community of difference. It is based on the ethics of acceptance of otherness with respect, justice and appreciation and on peaceful cooperation within difference. It is inspired by the metaphor of an interconnected, interdependent web of persons engaged in global community. It is fostered by processes that promote among its members the feelings of belonging, trust of others, and safety.

(Furman, 1998 p. 312)

The evidence of interdependent people connected in a global community is reflected in research about mobile phones and the networking of individuals (Green and Singleton, 2007; Akamatsu et al, 2005) which develops a sense of belongingness. Henderson (2002) points out that mobile phones, in every sense can be excluding and can foster a sense of isolation. An example of this is that there are self selecting groups of 'haves' and 'have-nots' and even if one is in the have group, individuals can exclude others. Exclusion may occur by not including people in (not on text distribution list) or by excluding people out (through forms of cyberbullying). The role of personal values in decision making is fundamental to developing belongingness.

2.10 Personal values

It has been found that personal values influenced by context and experience play a large part in student's decision making (Feigenberg et al. 2008). Feigenberg et al. (2008) found that the school, as a major environmental influence on development, plays an important role in how children process decision making with regard to risk behaviour and mobile phones.

The findings by Smith et al (2008) supports Feigenberg et al's (2008) assertions and as mentioned previously, indicates that banning phones in schools would not address the various forms of social exclusion. Smith (2002) proposed that education and development of personal values to develop risk awareness and personal safety would also be better at developing ICT awareness.

The blurring of boundaries which has already been mentioned (Henderson et al., 2002) also plays a part in children's decision making. Where do children perceive themselves to be when they are accessing the internet either from a fixed or mobile device? Where do they perceive themselves to be when sending a text? Physically they may be in their bedroom or on the bus, but in 'reality' they are in a contextually abstract environment which is largely unregulated. The perceived safety of the unregulated abstract environment may be based on the physical environment from which they are accessing it.

As context becomes less dependent on the physical environment the emphasis becomes more on developing the individual's psychosocial understanding and personal values. Feigenberg et al (2008) propose that the motivation to develop personal values can be fostered through a sense of belonging and acceptance from the environment that an individual perceives as most salient to those social choices. The school environment then is likely to have variable influence over pupil's choices and development of values in relation to decision making over mobile phones interactions depending on the perception of the level of acceptance or non-acceptance of mobile phones in schools.

In a theoretical paper, Osterman's (2000) claim that community and belonging are important in developing children's sense of autonomy and identity are still relevant to mobile phones in schools. Autonomy and identity can be linked to personal values and self regulation. Osterman proposes that the cultural values, norms and policies

of many schools work against developing a sense of community. The implication, as I understand it, is that at a time when identity and personal values appear to play a large role in the regulation and use of mobile phones, some school may not be promoting skills of self regulation and personal values which may be needed in the use of mobile phones.

The impact of the self monitoring nature of mobile phones on individuals and communities has meant that personal values are important. It has been found that it is more likely that there will be breaches in e-safety in environments where people feel rejected or where a sense of autonomy and identity is not developed (Smith et al. 2008). The mobile phone challenges traditional boundaries and, it is argued, develops a sense of belonging through the interconnection of family, friends and networks. Smith et al (2008) considered that a pedagogic shift to include mobile phones may support a sense of belongingness.

Studies (Anderman, 2002; Osterman, 2000; Akamatsu et al 2005) support the effects that belongingness has on positive psychological, social and academic outcomes for children. The same studies recognise that a strong sense of belonging supports a greater willingness to accept the authority of others. At the same time it is identified that belongingness develops a stronger sense of identity, autonomy and regulation of own behaviours.

The social cognitive perspective of motivation to belong is a basic psychological need which affects student's perception and behaviour (Osterman 2000). A postmodern

sense of community which encourages friendships and networks would in effect foster a sense of belonging which in turn may increase psychological, social and academic achievements. There is a risk that those who see greater friendships and networks developing without them and still do not feel valued, will experience greater rejection. Developing children's personal values and encouraging a safe place to be will empower children to identify injustice and take proactive steps to stop social exclusion thus increasing inclusion (Osterman, 2000; Feigenberg et al 2008).

If cultures and norms in schools are used to purposefully regulate who can enter the community and at what time they can enter, then groups such as parents have restricted physical access. However mobile phones offer the opportunity and possible risk of de-regulating who is in and who is out of the school community as a physical presence is not needed. Parents can use mobile phones to be networked to their children and vice-versa. This has the potential to cause problems if there has been no dialogue between pupils, teachers and parents about the acceptable use of mobile phones.

2.11 Friendships and networking

Mobile phones allow people to be networked to friends, family and the wider community to the benefit and cost of all. In a study of mobile technology in the deaf community, Akamatsu et al (2005) highlighted the potential uses of mobiles for schools. The study revealed that mobiles helped with inclusion; personal

accountability and communication. Mobile phones were used as assistive mobile technology to communicate via text messaging. Mobile phones were also found to be used as a barrier because individuals were able to turn them off which meant that an agreed method of communication had been stopped by one person which had not been agreed. This phenomenon was also experienced by Henderson et al (2002) during their research, and reflects previous points made in relation to 'in' and 'out' groups, cyberbullying and with regards to personal value sets (Green and Singleton, 2007).

Conflicting personal values between the sender and the receiver may occur as one's perception of availability may differ. Individuals may feel angry that a call to a mobile phone has gone to voicemail or that an individual takes days rather than hours to get back to them.

Being networked, available or connected can be seen as an intrusion into personal space and time. Gender differences have been found to have an effect on how individuals perceive and use mobile technology. Boys are more likely to perceive a mobile phone as an object status item and regard calls as more intrusive whereas girls perceived it as a means of staying in contact with friends (Henderson, 2002; Andrews et al, 2005; Smith et al 2008; Ling, 2000).

Social networking on sites such as Facebook and MSN have also identified gender differences where women were found to be 4 or 5 times more likely to use such sites (Tufekci, 2008). There is evidence to suggest that it is not children without friends

who use these sites or who text; rather it is likely to be children with friends with whom they want to stay in contact (Henderson et al, 2002; Green and Singleton, 2007).

Non-ownership of a mobile phone may as a consequence exclude one from a social group by fashion, financial capability and because of being difficult to access, communicate with and connect to. If there is increasing communication via text message to a group of friends and one person does not own a mobile phone then involuntary exclusion occurs and possible marginalisation. All of these points raise questions:

- How does the need of sense of belonging influence the use of mobile phones in school?
- How is the use of mobile phones in school affected by the need to feel connected within and between children, schools and families?
- How is the regulation of mobile phones in school affected by personal values if teachers need to feel connected to others such as their own family?

These questions will be addressed in the present study and introduce the notion of connectedness not only to peers but to the family.

Mobile phones are an important symbol of participation in a social network, they also increase ones availability to friends and perceived emancipation from parents (Ling, 2000). Ling's (2000) study obtained the views of children and their parents through semi-structured interviews with families and telephone interviews with young people

aged between 13 – 20 years old. Parents perceived the mobile phones as useful in case of emergencies and for micro-coordination (very precise adjustments of everyday activities).

Parent's views can be interpreted as being in conflict with the children's view's of emancipation because children are more immediately accessible to the parents. Although children are able to turn phones off, there has developed an immediacy of communication system built up within the family system. This may add to a common sense of identity in the family group and may develop a good sense of belonging between the children and the parents. The role of parents within a child's mobile phone network and the motivation for parents to allow children to own mobile phones is critical in understanding psychosocial pressures and influences on youth culture.

2.12 Parents

Recent research has considered how the use of mobile phones affects parental views, ownership and use of them between parents and their children (Palen and Hughes, 2007; Williams and Williams, 2005; Matsuda, 2007).

A small scale study by Palen and Hughes (2007) examined how characteristics of family life shaped and were shaped by ICT and adds to the debate about the need for connectedness and mobile phones. Palen and Hughes (2007) claim that mobile phones facilitate the extension of a wider reach of 'home' beyond the physical house.

Parents can be a parent all day by being able to centre the 'home base' on the self. This finding links with the findings of theoretical and research papers which identify mobiles as blurring the public and private spheres, time and space boundaries (Selwyn, 2003; Henderson et al, 2002; Green and Singleton, 2007).

The rapid change in technological development has changed our societal use and perception of mobiles. Lima, Barnett, and Vala (2005) believe that this had increased our sensitivities to less visible risks associated with new developments. For example, the risk of children being targeted by bullies or paedophiles receive much publicity in the media and these risks are harder for parents to supervise or monitor (Pain et al., 2005). This, according to Lima et al (2005) leads to greater societal perceptions and sensitivities to mobile phones and risk.

Rice and Katz (2003) express concern that greater sensitivity to risks associated with mobile phones and the difficulty of gaining pedagogic change will constrict much wider societal needs. However they do not elaborate on what they believe the specific societal needs are.

A summary of some of the recent research about the uses and perceived views of the relationship between parents, children and mobiles is shown in the table below. Not all the research included both groups (parents and children).

Table 2.3 Summary of recent research on uses and perceived views of the relationship between parents, children and mobiles

Author	Method	Summary of Outcome
Palen and Hughes, 2007	Qualitative interviews, an experimental sampling method protocol, and voicemail diaries with five family groups for one week each in the summer of 2005.	<ul style="list-style-type: none"> - to help extend the idea of "home." - being communicatively available - maintaining physical predictability and stability of home base.
Matsuda, 2007	<p>surveys: First was a questionnaire survey, valid paired responses of 233 second year junior high school child and parent,</p> <p>second: 13 interviews with mothers.</p>	<ul style="list-style-type: none"> - Anxiety about safety and greater awareness concerning children. Dealing with emergencies and preventing crime prevention. - For them to be picked up by their parents, for communication at school or after-school club activities, - or when they act independently from their parents
Pain et al, 2005	<p>10 discussion groups were carried out with 55 young people;</p> <p>questionnaire to 1,069 young people;</p> <p>verification exercise was carried out using participatory diagramming techniques with members of Gateshead Youth Assembly.</p>	<ul style="list-style-type: none"> - Mobiles do not appear to bring fundamental changes to the lives of young people - Mobiles have taken on a role in the existing ties, struggles and surveillance between young people and adults; in the already contradictory nature of young people's relationships with public spaces; and in extending existing patterns of victimization and risk-taking behaviour to the new spaces of mobiles. - Mobiles aid resilience in the face of risk, enhancing well-being and access to public spaces, but in ways which are still structured along lines of gender, age, sexuality, ethnicity and class.
Williams and Williams, 2005	36 qualitative interviews and 50 self-fill questionnaires concerned with the subject of child/parent negotiation	<ul style="list-style-type: none"> - Mobile phone is used by parents to 'keep tabs' on their children's movements outside of the home, to 'invade' their 'private' space. - The mobile has enabled

		<p>children a greater degree of freedom of movement and negotiation over their movement, they nevertheless are aware that the mobile means that must still remain in contact with their parents.</p> <p>- the mobile is increasingly being used as a bargaining chip in the negotiations between child and parent</p>
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There is a growing body of research examining the relationship between parents, children and mobile phones as illustrated in table 2.3 however there appears to be little or no research on influences of use and regulation between parents and children of mobile phones in schools. The gap in the research of mobile phone use and regulation between parents and children that the present study will address is to collect the views of parents and children with a focus on the physical and time constrained school environment.

2.13 Summary

There has been a rapid growth in technology over the years. Mobile phones are fast replacing or supplementing other technology such as the traditional land-line telephone and even replacing activities which were traditionally internet based such as downloading music and emailing (Ofcom, 2008; Ling, 2000). These views are reflected in the quotes below from the Ofcom 2008 Market Report:

- During 2007 the number of active UK mobile subscriptions increased to 73.5 million, an increase of 5% during the year. The numbers of both pre-pay and contract mobile subscriptions increased during 2007 (p.319)
- Research finds that 70% of people with a mobile and a fixed-line phone say they use their mobile to make some calls even when they are in the home. In addition, ten per cent of people with a fixed line at home say they never use it, claiming that they always use their mobile (p.294)
- Instant messaging is more popular across all children's age groups than email, indicating a major difference between the behaviour of children and adults on the internet (p. 345)
- Older children are more likely to take photos and listen to music on mobile phones, indicating that children regard mobile phones as converged devices, offering more than basic voice and text services. The increasing popularity of sending or receiving photo messages and video clips on mobile phones by children may be an extension of the popularity of sharing images on social networking sites (p. 346)

(OFCOM, 2008)

The psychological and social implications, uses and perceptions of this rapid growth are less well researched and have subtle, intricate and interwoven nuances that extend beyond a cursory discussion about mobile phones offering basic voice and text services. It can be argued that society is changing rapidly but pedagogy is not (Jefferies et al, 2007; BECTA 2007c). This does not mean one is right and the other is wrong, it does however highlight tension between mobile technology which challenges the traditional boundaries and regulation of the school environment. This tension may be protecting vulnerable groups or creating a divide between generations. The present study aims to explore this further.

There has been research into mobile technology but it has mainly involved 18+ year olds. Research has also tended to focus on schools as a separate entity to families and children. This may have been relevant in research involving fixed ICT but it is not as relevant when addressing mobile phones. The present study focuses on the

school, the pupil and the family as it considers there to be an interactive influence between the groups.

The rapid development of technology has brought with it a sense of fear and awareness of potential risk and danger which is possibly enhanced by a lack of generational knowledge. The fear is compounded by the knowledge that some of the risks, such as grooming or cyberbullying, can take place in the private sphere of a bedroom via mobile phone or internet. The risks associated with mobile phones are less visible, somewhat unknown and developing, hence lead to higher societal and community sensitivity (Lima et al., 2005).

The risks of technology are documented and have been outlined within this literature review. The literature about e-safety is a combination of surveys, interviews and focus groups but tends to report back statistical generalisations using qualitative data to reinforce or justify statistics. Smith (2002) described child protection as looking through 'the wrong end of the telescope' and that the emphasis of child protection should be on prevention. Questions still remain as to whether children, schools and families perceive risks of content, culture, commerce and contact in relation to mobile phones. The present study will address this question and attempt to elaborate on whether mobile phones increase child protection issues.

There has been an impact felt by the introduction of mobile phones in both adult and child populations. Rice and Katz (2003) argued that there are social benefits presented by mobile phones but they (mobile phones) do not receive the attention

that other technologies such as the internet does. The present study aims to give them this missing attention by focusing on the interactions between young people, schools, families and mobile phones.

The literature surveyed has revealed a broad range of methods of data gathering. Methods have ranged from questionnaires, focus groups, telephone interviews and face to face interviews all of which have been on and off line in nature. The questions raised throughout the review of the literature are condensed in the methodology chapter. There are gaps in the research with regards to experiential impact of mobile phones on belonging and identity and the psychosocial factors which influence use and regulation of mobile phones in schools. The best way to research these gaps is explored in the next chapter.

The present study aims to identify how most of the psychological and social factors (termed psychosocial factors in this thesis) in relation to mobile phones, as identified in the literature review, impact on high schools. Both the regulation and the use of mobile phones have been identified as synchronous and as such the research has a study proposition which states:

The regulation and use of mobile phones is influenced in high schools.

This proposition led to the formulation of 2 research questions which the present study aims to answer. There are:

1. How do psychosocial factors influence the use and regulation of mobile phones in high schools?
2. How do unique cultures in the schools emphasise different psychosocial factors which influence pupils, teachers and parents in their regulation and use of mobile phones?

Question 1 has been generated from the identified factors in related literature and is posed to explore how, and if the factors are present in high schools.

Question 2 has been developed to explore how the influences of individual schools may contribute to psychosocial factors. It draws on the work in many areas outlined in the literature review which cite the influence of the school such as the role of the school in cyberbullying and the impact of wider ICT innovation in schools at a systemic level.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The choice of research methodology, the design of the study, the methods used and procedures followed are set out in this chapter in the following order:

- Introduction
- Considerations which have informed choices of research methodology and study design
- Study design including procedures adopted and actions carried out
- Design procedure
- Data Analysis
- A review of the major threats to reliability and validity and steps taken to control these
- A discussion of ethical considerations pertinent to the study
- Summary

The chapter breaks down the rationale and evidence base for the choices in each step of the methodological process. The choices are based on the current research surrounding all of the points raised within the literature review.

I will argue that the present study is unique because it is exploring a contemporary issue and the choice of methodology not only fits the research questions and proposition well, but it will provide a different perspective to research in the field of technology and e-safety. The following chapter will explain why an exploratory case study with multiple embedded cases was chosen to explore the following research questions:

1. How do psychosocial factors influence the use and regulation of mobile phones in high schools?
2. How do unique cultures in the schools emphasise different psychosocial factors which influence pupils, teachers and parents in their regulation and use of mobile phones?

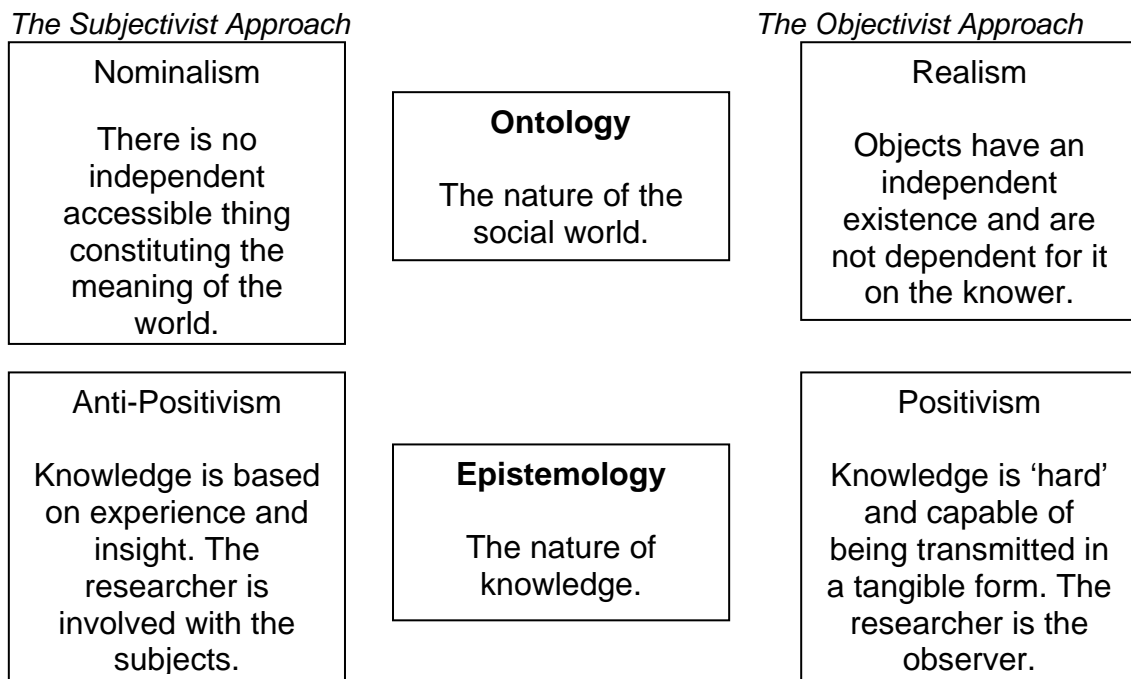
3.2 Considerations which have informed the choice of research methodology and study design

The choice of research methodology and study design has been influenced by factors from previous research and by the ontological and epistemological stance of the researcher. The first focus of this section is devoted to ontology and epistemology.

Educational research has two predominant distinct views of social sciences: the “scientific” viewpoint that is objective and is the traditional view, or the interpretative view which endorses the validity of subjective data. These views reflect conceptions of social reality and of individual and social behaviour (Cohen, Manion and Morrison, 2001, p. 7).

Burrell and Morgan (1979) identified four sets of implicit and explicit assumptions that underpin bipolar views of educational research and social science 2 of which have influenced the methodology of this study and are outlined in figure 3.1.

Figure 3.1 Two opposing approaches to social science and social science research. (Burrell and Morgan, 1979)



It is arguable either way that the two opposing views or the so called 'paradigm wars' (Pawson and Tilley, 1998, p.2) have hindered or helped social science research. Other researchers and approaches to research have taken more moderated approaches. Realism as a philosophy of science is an example of this and has been constructed to stand between the poles of positivism and relativism (Anti-positivism) (Pawson and Tilley, 1998). Realism does not strip the focus of research from its context as a traditional positivist approach might and it does not purely reflect the subjective views, hopes and desires of the people involved as a relativist approach might.

Research can be placed somewhere on a continuum between the two opposing poles. Yin (2003) argues that both positivist and anti-positivist methods can be utilised in case studies and affirms case studies as 'scientific'. I will discuss case study in more detail in section 3.2.2.

This study took a predominantly subjectivist approach to social research for the following ontological and epistemological reasons.

3.2.1 Ontological and epistemological assumptions as guides to research approaches

Ontology raises questions about the nature of the social world and being. It is the study of the nature of being, existence, or reality in general and of its basic categories and their relations. Particular emphasis is put on determining what entities exist or can be said to exist, and how these can be grouped and related within a hierarchy.

The context of the present study has categorised pupils, teachers and parents/guardians (referred to as parents throughout this paper). The categories are socially construed by the nature of the roles played within society and the interactions expected of each member within the social construct of school. It is acknowledged that although these appear to have strong boundaries, there is the possibility that these may weaken. An example of this would be if a parent is also a teacher (at the same or a different school). The context has also placed boundaries around 'school'

and 'not school'; however the literature review (section 2.8) identifies that these boundaries are challenged by mobile phones. A nominalist philosophy which proposes that there is no independent accessible thing constituting the meaning of the world is therefore adopted.

As theories of knowledge typically involve assumptions about knowledge, epistemology can be seen as different but complementary to ontology. The context of the present study has been partly determined by the epistemological stance of the researcher in that knowledge is based on experience and insight. As much as possible the researcher has tried to be involved with the subjects. This may be a threat to reliability and validity which will be discussed later in this chapter.

This study is based within a social context and is scientifically studying a social object (mobile phones). The nature of the object of the study is therefore dependant on individual experiences which need to be accessed through individuals (the psychosocial factors on use and regulation of the mobile phone); hence, the research is subjective.

The ontological and epistemological issues already identified as well as the contextual and contemporary nature of the study favour a subjectivist approach to social science in the form of an exploratory case study with multiple embedded cases (Yin, 2003).

A case study is an empirical inquiry that:

- Investigates a contemporary phenomenon in depth and within its real-life context, especially when
- The boundaries between phenomenon and context are not clearly evident.

In other words, you would use the case study method because you wanted to understand a real life phenomenon in depth, but such understanding encompasses important contextual conditions – believing that they might be highly pertinent to your phenomenon of study.

(Yin, 2009 p. 18)

Yin (1993) has been criticised for devoting a whole chapter of his book to a positivist perspective (Bassey, 1999). The influence of Yin's (1993) thinking can be identified in his books (2009) where he compares types of case study and methods of data collection with experimental designs that are positivist in nature. Yin (2009) writes about the need to 'define and test rival explanations' (p 133) but also recognises the theoretical basis for case studies which opens up his methodology to exploratory work and generalisations.

Yin's (2003; 2009) motivation appears to have always been to make case study methodology more rigorous and comparable to traditional empirical research. The following section examines case study in more detail and discusses its relevance to the present study.

3.2.2 Case studies and empirical research

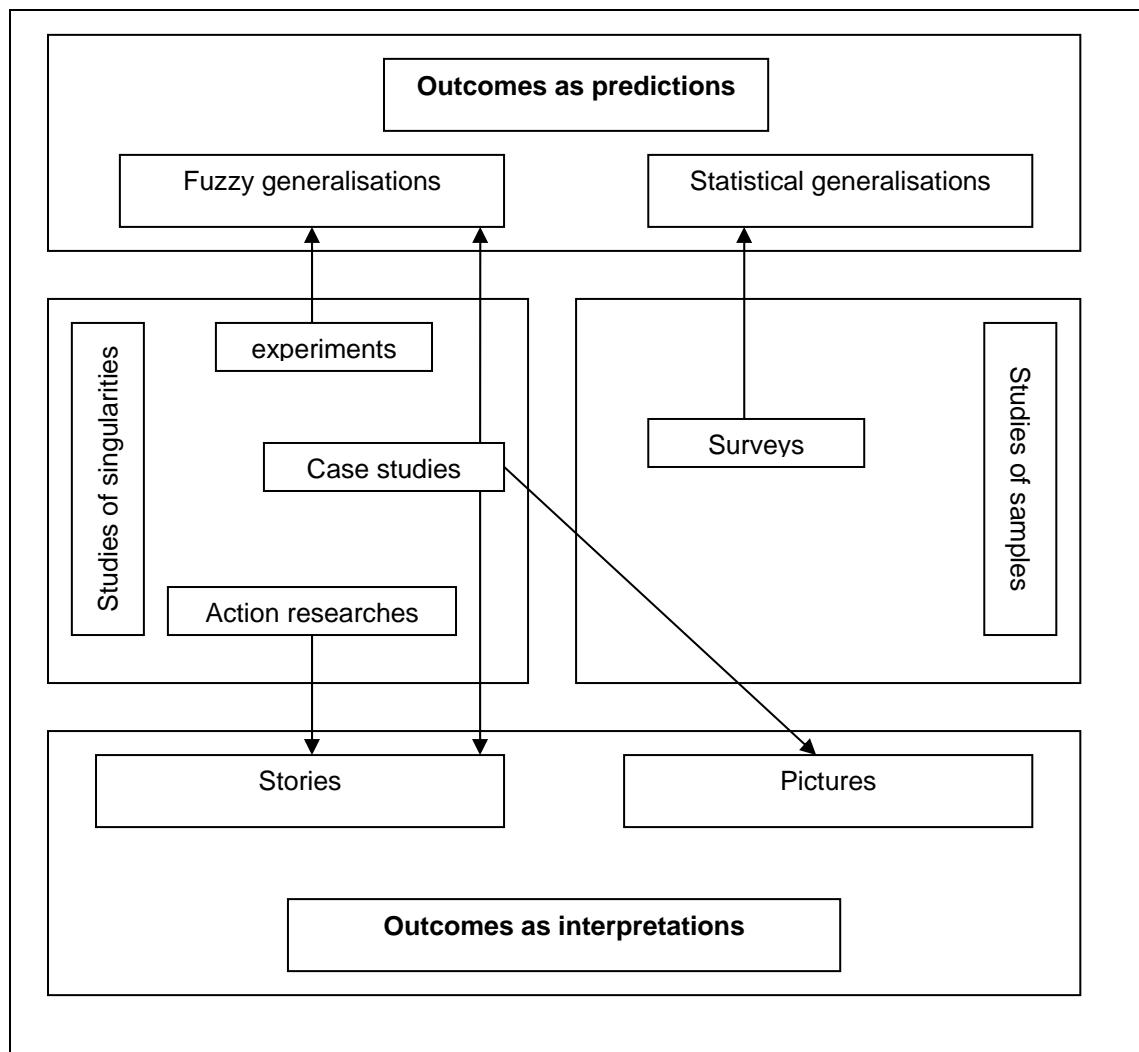
In an overview of empirical educational research, Bassey (1999) suggests that there are two kinds of predictive outcome. Predictions of what might happen (statistical generalisations) and interpretations of what have happened in particular situations (fuzzy generalisations), these are detailed below:

- Statistical generalisations – ‘a quantitative estimate of the likelihood of something happening can be made’ ; and
- Fuzzy generalisations – ‘a qualitative estimate can only be made e.g. ‘it is very likely that’

(Bassey, 1999 p. 4)

Different methods of empirical research can be seen in Bassey’s (1999) overview of them in relation to predications and interpretations.

Figure 3.2 Overview of empirical educational research (Bassey, 1999. p.4)



The contemporary nature of the present study not only requires predictions, but also interpretation as an outcome which is why this research is set apart from other methodologies such as action research, experiments and surveys.

Case studies are not only set apart from other methodologies because of the possible outcomes (which may be interpretative and/or predictive; Bassey, 1999). Case studies are also distinct because of the questions which are being asked, the extent of control that the researcher has over behavioural events and the degree of

focus on contemporary or historical events (Yin, 2009). These are summarised in table 3.1.

Table 3.1 Relevant Situations for Different Research Strategies (Yin, 2009. p. 8)

Strategy	Form of Research Question	Requires Control of Behavioural Events?	Focuses on Contemporary Events?
Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival analysis	Who, what, where, how many, how much?	No	Yes / No
History	How, why?	No	No
Case Study	How, why?	No	Yes

The case study as a research method aims to answer ‘how’ and ‘why’ questions whilst interpreting information about current situations and seeking to make predictions about how people want things to be. There are exploratory, descriptive or explanatory case studies (Yin, 2009).

3.3 The study design

The study design section covers the rationale behind the decision making when choosing the study design.

3.3.1 Exploratory case study

Yin (2003), Bassey (1999) and Stake (2000) all make reference to exploratory case studies but under different guises. The table below highlights the similarities:

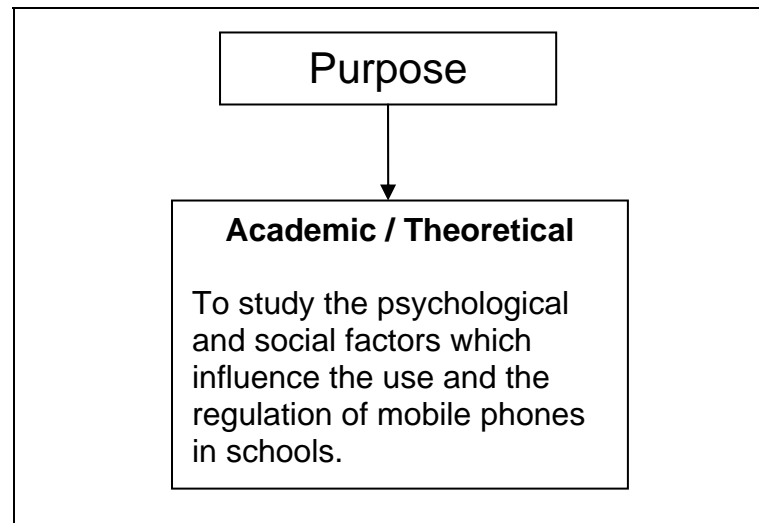
Table 3.2 Descriptions of exploratory case studies

Yin (2003) Exploratory Case Study	Bassey (1999) Theory Seeking case Study	Stake (2000) Theory Development Case Study
The rationale for conducting an exploratory case study can be to develop pertinent hypotheses and propositions for further enquiry.	The focus is the issue rather than the case. Concepts of fuzzy generalisations and propositions are a way of communicating research findings to those who may use them.	Theory building is the search for essence, pervasive and determining ingredients, and makings of laws. The case study however proliferates rather than narrows. One is left with more to pay attention to rather than less.

Each description in table 3.2 highlights the development and exploration of concepts. The review of the literature and other studies within this field had highlighted that theory development of the impact that mobile phones had in high schools was not present. It was clear that this research needed to generate hypothesis for future research to build on.

Yin (2003) recommends that exploratory case studies state a 'purpose', because due to the nature of the type of investigation specific theory propositions are not always possible. This case study identified an academic and theoretical purpose and created one proposition which was based on the central question mentioned previously.

Figure 3.3 The study purpose



The study proposition:

The regulation and use of mobile phones is influenced in high schools.

This proposition led to the formulation of two research questions which were based on the review of the literature:

1. How do psychosocial factors influence the use and regulation of mobile phones in high schools?
2. How do unique cultures in the schools emphasise different psychosocial factors which influence pupils, teachers and parents in their regulation and use of mobile phones?

3.3.2 Multiple embedded cases

A multiple case design can be defined by:

The same study may contain more than a single case. When this occurs, the study has used multiple case design.

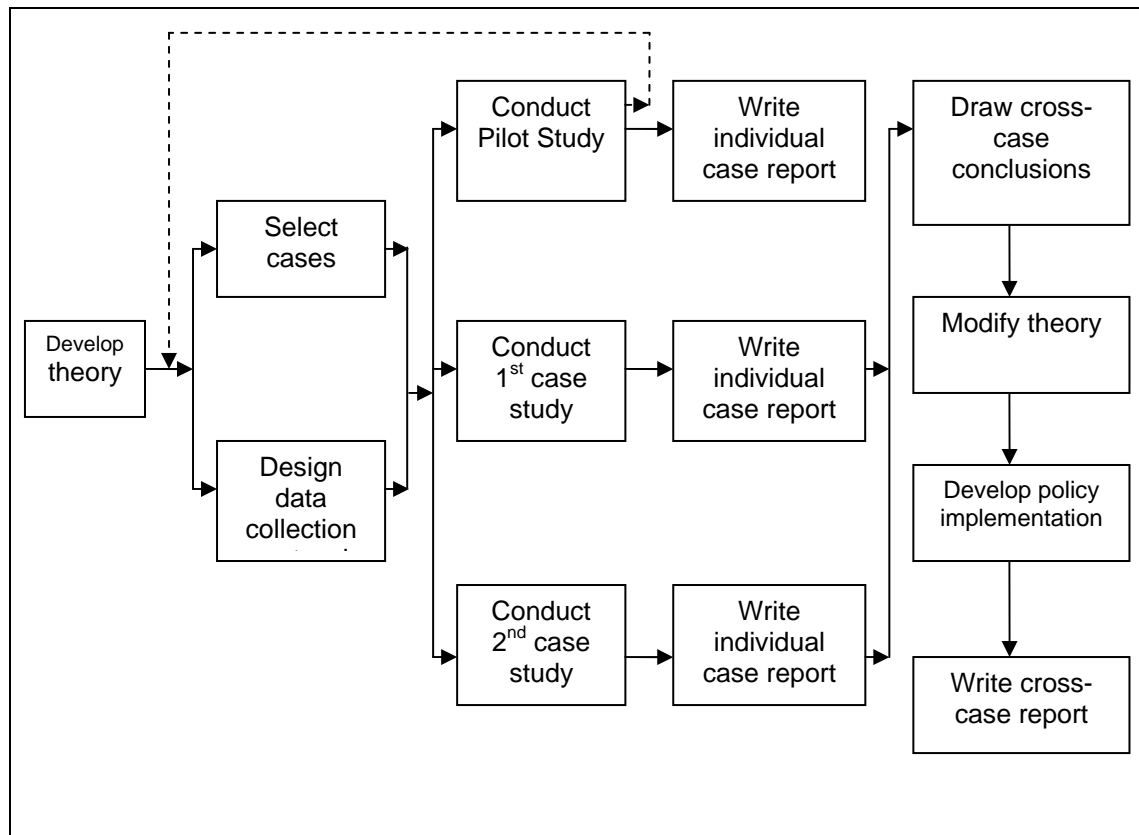
(Yin, 2009 p. 53)

The reason I chose to use multiple cases and not just one case study, was not to acquire greater statistical generalisation or population generalisation, but to develop the possible emerging themes by replication logic (Yin, 2009).

Because research into parent and child interaction in relation to mobile phones in other fields of study have also highlighted common themes and mobile phones are a national and global issue, I made the decision that the broader experiences of mobile phones in high schools were unlikely to be rare or unique. This assertion meant that a multiple case study design was more applicable than the single case study design (Yin, 2009).

The approach used in the present study using multiple case studies can be seen in figure 3.4.

Figure 3.4 Case Study Method based on Yin (2009) (Yin, 2009, p.57)



A benefit of carrying out multiple embedded case studies is that the individual cases (schools) themselves were not the focus of the enquiry. This supported the exploratory nature of the research as there were not the constraints of having to analyse or match variables in each case study. The focus of the enquiry was able to be on the substantive and theoretical aims of psychosocial factors and mobile phones.

3.4 Design and procedure

This section sets out the research and key events which had significant contributions to setting up the research. The case studies are outlined and then the justification for the design and methodology are explored.

An exploratory case study with multiple embedded cases for academic / theoretical purposes was decided to be the design which best fitted with the methodology and research questions.

The study took place in the time period of March 2009 – December 2009. It consisted of 1 Pilot Study (PS) and 2 case studies: The pilot study was completed to help refine the content of, and the procedures of data collection (Yin, 2009). Case Study 1 (CS1); and Case Study 2 (CS2) followed on from the pilot study and each replicated the same design. The process and rationale for each step will be outlined in the following section. Below is a calendar of significant events during the Study process.

Table 3.3: A calendar of significant events during the research process

Research Calendar 2009		
March 2009 11 th – Meeting with head teacher at case study 2 (CS2). 16 th – (CS2) Letters for volunteers to school. 17 th – (CS2) Letters for volunteers distributed. 20 th – Agreed decision not to use this school as	April 2009 4 th – Car collision – off work and study	May 2009 5 th – Back to work 20 th – (PS) Pick up questionnaires; start of analysis and revision of questionnaires.

a pilot study. 23 rd – Meeting with head teacher at pilot study (PS).		
June 2009 8 th – Parent and pupil interviews 1. 15 th – Parent and pupil Interviews 2. 17 th – Meeting with head teacher at case study 1 (CS1). 18 th – Revised Questionnaires to CS1 & CS2.	July 2009 Frequent requests to CS1 & CS2 for questionnaires and names of pupils. CS2 – school gets Swine Flu outbreak.	August 2009 Pilot study report written. Interview questions revised.
September 2009 18 th – (CS1) Pick up questionnaires from. 18 th – (PS) Written feedback to.	October 2009 Researcher in frequent communication with CS1 & CS2. No names of children given by CS1 or CS2. No questionnaires from CS2.	November 2009 16 th – (CS2) Pick up questionnaires. 17 th – (CS2) Parent and pupil 1 interviews. 24 th – (CS2) Parent and pupil 2 interviews. 25 th – (CS1) Parent and pupil 1 interviews.
December 2009 1 st – (CS1) Pupil 2 interview. 4 th – (CS1) Parent 2 interview. Transcribe, Code, Analyse.		

3.4.1 Criteria for school selection

The schools identified for the research, collaborate as a cluster of high schools but are geographically apart and serve different school populations. One high school was a single gender school and the reasons for this are explored later in this chapter.

3.4.2 Setting up the research

In March 2009 I met with the Head Teacher from Case Study 2 (CS2) as I already had a good working relationship with this head teacher. Originally this was due to be the pilot study school. The head teacher printed my request for volunteers' letter in line with other school letters and put it on school headed paper (Appendix 2 – School letter to parents). He explained the research in person to all year 10's and sent the letter out in line with school policy.

We agreed that 3 school days to receive returns was the best return rate the school achieved with other requests. No letters were returned. The head teacher thought that this may be due to a difficult period of time in the school. The year 10's were due to go on a two week work experience placement so it was agreed that this would not be the pilot study school.

A meeting with a different head teacher had already been arranged for the 23rd and the head teacher was keen to start as soon as possible and volunteered to be the pilot study. It was agreed that the head of year 10 would contact several parents and ask if it was acceptable for me to ring them to explain the research and ask for participation. This purposive sampling method was thought by the head of year 10 to be most likely to produce responses than a general letter which would have gained a more random sample, albeit a self selecting sample (Robson 2002; Cohen, Manion and Morrison, 2000). The head of year 10 was given a criterion for the pupils to be involved.

The children should be of average ability, able to communicate, not be anti-authoritarian and should possess a mobile phone.

Criteria for selection of pupils 2009

The criteria was intentionally open for interpretation and aimed at getting names of broadly representative pupils from year 10 as the year group identified in the literature review as a group for whom risk taking behaviour and mobile phone use is at a peak. I asked for pupils who were not anti-authoritarian as I did not want pupils who might solely use their mobile phone as a way of breaking school rules. The pupils were to be children who would under normal circumstances follow school rules and still bring a mobile phone into school. The pupils needed to possess a mobile phone as I would be asking them questions about their use of it.

3.4.3 The pilot study

The pilot study was designed to be the same as the proposed Case Study research. Rather than being multiple cases, the pilot study was only one case and it aimed to refine the following:

- **data collection** - plans for the content of the questionnaires and interviews;
 - plans for the procedures of distributing the questionnaires and the conduct of interviews; and
- **data analysis** – plans for the feasibility of the of the proposed data analysis.

The design was such that 3 different high schools took part; 1 pilot study and 2 case studies. The details and pilot study report can be found in the appendix (Appendix 3 – Pilot study report). The following section outlines the design of Case Study 1 and Case Study 2. Both case studies followed the same design and procedures.

3.4.4 Case study 1 & case study 2 – design and procedures overview

Both case studies are represented in this section as the methodology for both was the same. The timings of interviews and questionnaire returns were different and these are presented in Table 3.3: A calendar of significant events during the research process.

Questionnaires were sent to the head teachers for distribution to the teaching staff of the school (Appendix 4 – Teacher questionnaire). Lengthy discussions had taken place with each head teacher to emphasise the importance and the purpose of pupil and parent participants.

A request was left with the head teachers to identify six possible Yr 10 Pupils whom I could contact. The criterion for the pupils was given to each head teacher. I sent an email or left a telephone message once a week for the first 4 weeks but no names were sent through to me. At the end of the 4 weeks it was the summer holidays.

As the new term (September) began it was decided to continue to use yr 10's despite the pupils having just entered year 10. Contact was re-established with the head teachers and the request for names of pupils was reiterated. After 2 weeks of no response from either school, I emailed or telephoned once a week using the head teachers secretary as the main contact. After a further 4 weeks of no response I emailed and telephoned twice a week. After a further 2 weeks of no responses I contacted a different member of the senior leadership teams of both schools.

In both cases it was agreed that I would have the names of 6 pupils within 5 school days following contact of the second member of the Senior Leadership Team. After 5 school days I received no names, so after careful consideration I used a school database to randomly find six pupil names. The database identified names of individuals and this information was used to support the schools. Careful consideration was given to the ethical implications of this approach as identified by Cohen et al. (2001) and Robson (2002) when conducting social research in schools.

Table 3.4 Ethical considerations when identifying possible volunteers

Ethics Considerations	Decision
People's right to privacy	Individuals were not being approached at this point so their privacy was still assured. It was considered that using a database might increase some privacy for those parents and pupils who may always be singled out by schools as 'supportive' families. It was decided that on balance wherever the names came from, the people approached had the right not to take part and this protected their right to privacy.

Consent	No-one was required to take part without informed consent.
Access and acceptance	Official permission to conduct the research had been given from the local authority and from the head teacher from each school. I was open about the aims of the research and the potential benefits to myself, the participants and the local authority. The use of the database was accepted as a preliminary way of identifying potential participants.

I emailed 6 names of potential participants to the head teacher and the other member of the senior leadership team in each of the schools with a request to clarify that the identified names would still meet the criteria. All but one met the criteria. The one that did not had recently left the school.

The process of choosing 6 names only had to be repeated once in one of the case studies. This was in case study 1 because there had been no responses from the first 6 names in the list.

The purpose of choosing names in batches of 6 pupils when I only needed 2 volunteers was for two reasons:

1. to increase anonymity for the two pupils who would be chosen; and
2. to take into account that some people may not answer or some may not agree to take part.

Telephone calls were made to the pupil's home telephone numbers so that I could speak with their parents to explain the research. It was decided that a script would be

too formal so a guide of points to mention was applied to each initial call (Appendix 5 – Guide to initial telephone calls to parents). Telephone calls were made at different times (2:00 p.m.; 4:00 p.m. ; & 7:30 p.m.) throughout different days. Different days and times were used for 2 primary reasons:

1. so that parents who worked full or part time had equal opportunity to take part as those who did not work although the assumption was not that non-working parents would always be at home; and
2. the telephone calls had to fit around my full time work commitments.

Some calls were unanswered or went to answer-phone. No messages were left on answer machines. These calls were recorded as ‘Number of unavailable calls’. Table 3.5 summarises the response rate from telephone calls:

Table 3.5 Summary of purposive sampling, initial contact

Case Study	Number of pupils chosen	Number who met the criteria	Number of phone calls made	Number of rejections	Number of unavailable calls
Case Study 1	6 & 6	5 & 6	22	1	19
Case Study 2	6	6	6	0	4

Once contact had been made with a parent and child, each participant received a summary of the proposed research (Appendix 6 – Summary of proposed research). Each participant also received a copy of the ethical issues and the proposed safeguards (Appendix 7 – Ethics and safeguards).

I read a transcript to all volunteers before the interview process, re-emphasising the voluntary nature of their involvement, their right to withdraw at any time and safeguards in place to increase their anonymity (Appendix 8 –Pre-interview script). Verbal and written permission was then requested before the interviews continued.

The interviews were recorded with the consent of the participant. Interviews lasted between 30 – 45 minutes.

The list of questions for each participant had been re-written following feedback from the pilot study. The questions for parents and pupils followed the same format but with slightly different wording (Appendix 9 – Pilot study and case study questions for parents and pupils).

After each interview had been completed the recording was transcribed on to computer and coded. Once all the data had been obtained from each Case Study it was then analysed.

3.4.5 Data gathering – a rationale

A multiple embedded case study was used to obtain perspectives about a common topic in the context of different school organisations. Perspectives came from different sources. It was acknowledged from the start that perceptions about the

reality of the situation were constructed by individuals and multi-faceted. One aim was to identify similarities and differences between groups and cases.

As I believe that it is important not to be seen as a neutral outsider who will evaluate policies and practices I spent time talking with the head teachers and providing them with as much information as possible. Stronach and Maclure (1997) argued that it is of greater benefit if the researcher admits to their own value-based constructions, and present them as openly and honestly before and during data gathering. The method of data gathering was determined by the requirement of the research design.

Case study research has no specific methods of data collection or of analysis which are unique to it as a method of enquiry. It is eclectic and in preparing a case study researchers use whatever methods seem to them to be appropriate and practical. One study may predominantly use questionnaires, another interviews, another observations and another documents – and within each description there are endless variations.

(Bassey, 1999 p. 69)

Yin's view (2009) supports Bassey's, however Yin highlights 6 most commonly used sources of evidence. The research ethics and the 'purpose' of the research led to the using four (numbers 1-4) during the pilot study, of Yin's highlighted 6 sources of evidence:

1. Questionnaire
2. Interview
3. Documentation – policy
4. Archival records – exclusion data related to mobile phones
5. *Direct observation*
6. *Physical artefacts*

The sources of evidence were refined for Case Study 1 and Case Study 2. It was identified during the pilot study that documentation and archival records did not add value to the exploratory nature of the focus of the research. The two sources of evidence chosen for Case Study 1 and Case Study 2 were:

1. Questionnaire; and
2. Interview.

3.4.6 Data collection

Data were collected from three different groups: teachers; year 10 pupils; and parents. The rationale for choosing the specific groups and the study criteria for each participant is set out in the following table.

Table 3.6: The three study groups, criteria and rationale

Study Participants	Criteria	Rationale
Teacher	Class or subject teachers. (These participants are regulated by the qualification held to be a class or subject teacher).	Class and subject teachers were chosen as the literature identified teachers as potentially having the broadest experience of pupils using mobile phones in school and the group most likely to use and regulate mobile phones.
Yr 10 Pupil	Pupils currently in year 10 who are of average ability (teacher assessment), who are able to communicate, not anti-authoritarian and who possess a mobile phone.	Yr 10 pupils were a group identified in the literature review for whom risk taking behaviour and mobile phone use was at a peak; As each case study had 2 participants from this group I wanted them to be able to communicate their thoughts; I did

		not want pupils who might use a mobile phone for the sole purpose of breaking the rules; and I wanted to talk to pupils about their mobile phone use, so they needed to possess one.
Parent	Parent of a child in 'pupil group' with greatest overview of the regulation and use of the pupil's mobile phone.	The literature review had identified that family links had some influence in the use of mobile phones. The decision was made to use parents of pupils within the study to reduce possible issues with validity.

As the study was exploratory, all the elements of data collection needed to be piloted to identify the most productive way of collecting data. Issues addressed included can be seen in the table below.

Table 3.7 Data collection issues explored, outcomes and changes made

Issues explored	Outcomes from Pilot Study	Changes made as a result of Pilot study
Units of analysis – Will teachers, parents, pupils and policy yield enough data?	It was decided that sufficient data could be obtained from teachers, pupils and parents. School policy and exclusion data added no benefit.	1. No collection of school policy on mobile phones. 2. No collection of exclusion data related to mobile phones.
Methods of Data Gathering – Are the methods of data collection appropriate?	The methods of data gathering were applicable to the specific groups however the questions and format needed changing to focus responses.	1. The questionnaire was re-worded and re-designed to give more focused responses. 2. The number of interview questions was reduced. 3. The wording of the interview questions was

		refined based on feedback.
Case Study Participants – Will the specific focus of the participant groups yield appropriate data? (teachers and not all staff, specific yr 10 and their parents).	The use of teachers and not all staff members yielded focused data; Yr 10 pupils commented on how their use of mobile phones had changed in school and provided a good overview. Parents' views yielded good data.	No changes made.
Case Study Protocol – What will be the best way of gaining consent and participation?	The gathering of volunteer participants was better if the school identified a small number of willing families and then I telephoned them rather than a general letter requesting volunteers.	1. A purposive sample of pupils was identified and then the parent of that child was approached by the researcher.
Case Study Protocol – What will be the best way of increasing questionnaire return rate?	Handwriting a note on the front of each questionnaire returned a 20% return rate.	1. Handwritten note on each questionnaire sent out in Case Study 1 & 2.

The pilot study highlighted several changes which needed to be made which were completed and used within the case studies. It also supported some of the assumptions which had been drawn from the literature review but had not been tested in previous research of this nature. Such affirmations included the decision to choose year 10 pupils. It also raised no concerns about the choice of cases for the main part of the case study.

3.4.7 Choice of cases

Schofield (2000) argues that the goal of portraying the 'typical school' is worthwhile however Schofield fails to describe what the 'typical school' is. Each school has subtle differences and complexities that the notion of 'typical school' is misleading. Deprivation, location, and number on roll are all factors which are not replicable from case to case. The 'typical school' in this case study is represented in its broadest sense as 'a building where children are educated'.

High schools were chosen as the high school population was recognised as having greater access, understanding and varying use of mobile phones when compared to primary aged and academic year 12 and above (Barrow and Heywood-Everett, 2005; Ofcom, 2008).

The data gathering from the pilot study and the case studies was made more rigorous by combining and applying different methods of gathering data to different data sets. This is commonly known as triangulation and was done at an individual case level and at a cross case level.

3.4.8 Triangulation

Triangulation may be defined as the use of 2 or more methods of data collection in the study of some aspect of human behaviour.
(Cohen et al., 2002 p. 112)

Denzin (1997) identifies four ways of triangulating data: observer triangulation; data triangulation; methodological triangulation; and theory triangulation. Two of the triangulation methods were chosen for use in the individual cases.

3.4.9 Triangulation – individual case

Data triangulation – the data from the questionnaires and interviews were triangulated as the participants were asked questions which related to research questions 1 and 2. This gave the researcher three perspectives on both questions from within each case study.

Methodological triangulation – the data were obtained using different methods of data gathering (questionnaire and semi-structured interview), allowing different pictures of the enquiry to emerge, and building up a richer holistic view.

3.4.10 Triangulation – cross-case

The data from the individual cases based on the 2 research questions were brought together. This required both data and methodological triangulation which provided cross-case data for the research questions.

3.4.11 Data collection

Data were collected in 2 ways from the participants. These were through questionnaire and semi-structured interviews. The following sections outline the rationale for choosing the 2 methods of data collection.

3.4.12 Questionnaires

Questionnaires were used to enable me to obtain a broad array of perceptions across the teacher participants which had diverse age and experience. The content of the questions were generated from the literature review and they were aimed at getting data to answer the two research questions. The questionnaires were piloted and amended accordingly to provide as much data as possible so that the research questions could be answered. The term 'use and regulation' was not used in the questions as it may have been seen as two questions within one. The pilot study identified that using the term 'regulation' in the questions allowed for answers to include when teachers had used mobile phones as well as regulating them so the term 'regulation' was kept. A copy of the pilot questionnaire can be found in the appendix (Appendix 10 – Pilot questionnaire). A copy of the questionnaires used with case study 1 and case study 2 can be found in the appendix (Appendix 4 – Teacher questionnaire).

The advantages and disadvantages specific to this research of using a questionnaire were carefully considered before and after the pilot study. The observations and actions taken following the pilot study can be seen in the table below.

Table 3.8 Advantages and disadvantages of questionnaire based surveys and the observations and actions taken as a result of the pilot study (Adapted from Robson, 2002 p. 233-234)

Disadvantages	Observation and action taken
1. Data are affected by the characteristics of the respondents (e.g. their memory; knowledge; experience; motivation; and personality)	Pilot study gave a range of views. Only teachers were sampled. Questions were open about gaining an insight into experience.
2. Respondents won't necessarily report their beliefs, attitudes etc. accurately (there is likely to be a social desirability response bias – people responding in a way that shows them in a good light).	Results from Pilot study showed that responses were not clear so the questionnaires were changed so that respondents were prompted by the beginning of a sentence (I believe that...; I feel that...) to encourage accurate responses. Responses were anonymous.
3. Typically have a low response rate. As you don't usually know the characteristics of non-respondents, you don't know whether the sample is representative.	Response rate was low so multiple requests of follow-up to request more returns was completed; also a copy of the case study summary report was given to all teachers to see if they felt it was representative.
4. Ambiguities in, and misunderstandings of, the survey questions may not be detected.	The pilot study highlighted some ambiguities and changes were made.
5. Respondents may feel their answers are not anonymous and be less forthcoming or open.	The pilot study indicated from the range of response that this was not an issue, however it was still noted on the questionnaire that anonymity was a key aim of the researcher. This was on the front of each questionnaire.

Advantages	Observation and action taken
<p>1. They provide a relatively simple and straightforward approach to the study of attitudes, values, beliefs and motives.</p> <p>2. They may be adapted to collect generalizable information from almost any human population.</p> <p>3. High amounts of data standardisation.</p> <p>4. Often this is the only, or the easiest, way of retrieving information about the past history of a large set of people.</p> <p>5. They allow anonymity, which can encourage frankness when sensitive areas are involved.</p>	<p>This was found to be accurate in the pilot study.</p> <p>The access to all teachers was advantageous as they were able to fill the questionnaire when they wanted to.</p> <p>There was a large amount of data from the pilot study.</p> <p>The pilot study showed that a variety of views were represented.</p> <p>The data from the pilot study included areas of sensitive and personal information indicating that the use of questionnaires was good.</p>

Some questions were closed so that information could be gathered and some were open ended so that individuals would not be constrained with their answers.

Questionnaires were used with teachers as defined by their qualification and their responsibilities within the school. The questionnaires had the added advantage of flexibility so that teachers could answer the questions in their own time. It provided anonymous opportunities for the teachers to comment on school policy and practice, which had the potential to be a sensitive topic.

3.4.13 Interview – face to face

Parents and pupils were asked to take part in an interview. This had several advantages (as outlined further on) over that of distributing questionnaires for these participants (Robson 2002; Cohen et al, 2000; Yin, 2009). As an educational psychologist, I am practiced and skilled at conducting interviews. The specific advantages to using interviews with these participants in this study were:

1. The line of enquiry could be modified to the responses and interesting points were followed up;
2. The interview could be focused to overcome a lack of standardisation of an unstructured interview; and
3. The use of open ended questions in an interview was more appropriate for these two participant groups because the study focused on the meaning of particular phenomenon which was evidenced as being meaningful to parents and pupils and the individual perceptions of processes within the family unit was required.

A focus group for the pupils was considered however I concluded that there were more advantages to conducting focused interviews. As the phenomenon being studied was a social issue, I decided that a focus group would be at great risk of providing socially acceptable and peer censored data (Robson, 2002; Cohen et al, 2001).

3.4.14 Participants

The number of participants was irrelevant for the purposes of this study (Yin, 2003). The defining of the participant groups which were sampled evolved from the literature review. Key factors were: gender (mix of male and female pupils); age (yr 10); and role (teacher, parent, pupil).

The participants from each case study were:

Table 3.9 Case study participants

Pilot Case Study	Case Study 1	Case Study 2
2 parents	2 parents	2 parents
2 pupils	2 pupils	2 pupils
9 Teachers	13 Teachers	10 Teachers

The numbers of participants in the parent and pupil groups were kept the same size between the cases to support the replication of the study (Yin, 2009) although the questionnaire return rate varied. Case study 1 was an all girls' school and case study 2 was a mixed gender school.

The questions in the questionnaires and the interviews used either 'regulation' or 'use' or both 'regulation and use', as the terms were somewhat interchangeable. It

also had to be considered that each participant had experience of mobile phones. All the pupil participants owned a mobile phone.

The significance of age and the use of mobile phones were recognised in the literature review. Barrow and Heywood-Everett (2005) identified year 10 as a key year group where the culture of inappropriate use of mobile phones peaked. The purpose of this research was to explore the influence of psychological and social factors on use so it focused on year 10. As age differences were not a focus of the research, no explicit research question had been devised to explore the impact of mobile phones on the different age groups however it is recognised that this is very likely and could be an area for further study.

Gender is also a factor which was identified as contributing to differences in the use of ICT and social communication (Tufekci, 2008) and relates also to mobile phones (Pain et al, 2005), however it is not a specific focus of this research. I chose to include a single gender school to create sensitivity in the data. I believed that the use of two different types of school (mixed and single gender) were more likely to highlight how unique cultures emphasised different psychosocial factors. The literal replication previously mentioned would therefore be used to identify whether similar results could be predicted, in the present study this was twofold: psychosocial factors influencing regulation and use; and each case study's unique culture emphasising different psychosocial factors (Yin, 2009).

As previous research had highlighted the significance of interaction between parent and child in relation to the use of mobile phones, the parents who were chosen were paired with their child (Palen and Hughes, 2007; Matsuda, 2007). The parents were asked to take part in an interview. The adult who provided the main childcare was interviewed – in each case this was the mother.

3.5 Data Analysis

It was important to use the pilot study as fully as possible so it was used to check the feasibility of the proposed data analysis (Yin, 2009). The following issues were explored and the changes made are represented in the following table:

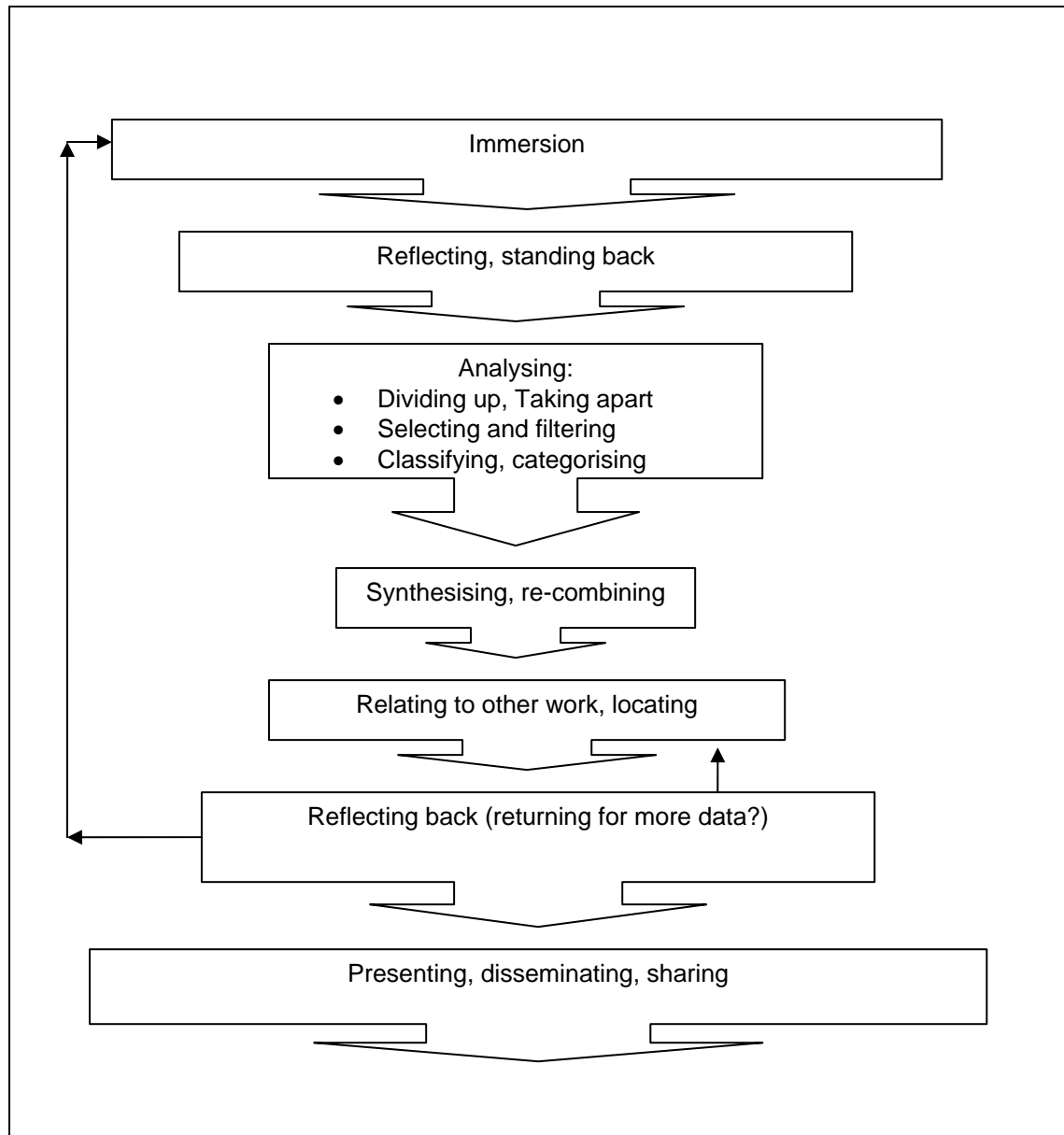
Table 3.10: Data analysis issues explored, outcomes from pilot study and changes made as a result of outcomes.

Issues explored	Outcomes from Pilot Study	Changes made as a result of Pilot study
Case study data base – Is the computer program sufficient to act as a data base?	The computer program NVivo was used to store transcripts of interviews and answers from the questionnaires. The program also allows for the data to be coded and sorted.	None – NVivo was very efficient and suited the needs of the researcher.
Coding – What codes are needed?	The literature review and the pilot study generated 43 codes. These were not all suitable.	1. The codes were refined to 15. (this is explored further in section 3.5.2)
Coding – What types of codes need to be used?	A mix of pattern, descriptive and	1. Three pattern codes were identified from the

	interpretative codes emerged.	initial 15 refined codes. 2. Descriptive and interpretative codes were used in conjunction with each other. (this is explored further in section 3.5.4)
Establishing a chain of evidence – Does the data and analysis provide a clear chain of evidence?	The chain of evidence from data to conclusion was unclear.	1. Tables to be completed for each case study to separate out strands of data from the different participant groups to maintain a clear chain of evidence.

The following section outlines how the data were analysed. The data analysis process was based on Wellington's (2000) approach to making sense of qualitative data.

Figure 3.5 The approach to making sense of qualitative data. (Wellington, 2000)



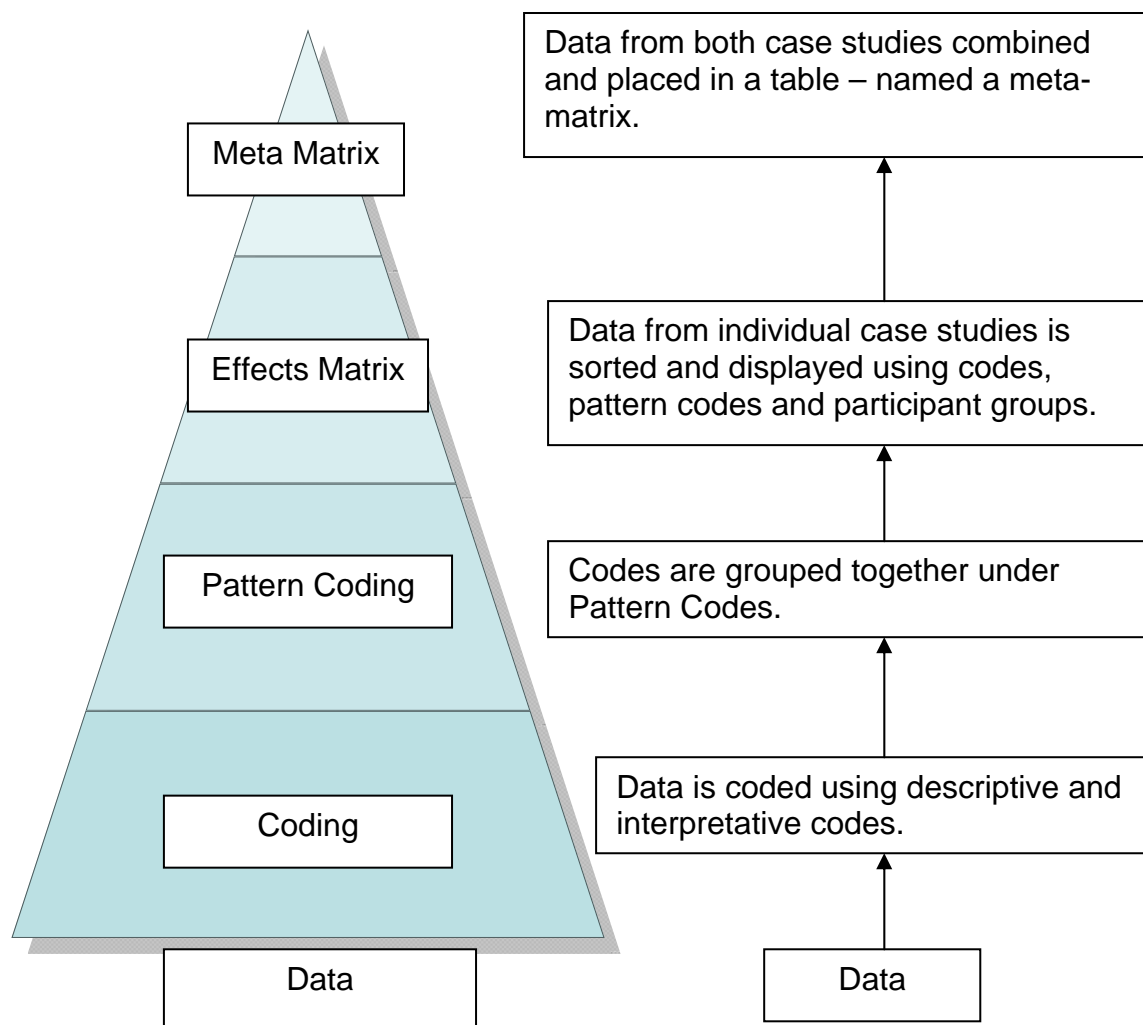
3.5.1 Analysing

Coding was used as a means of data reduction (Miles and Huberman, 1994).

Transcriptions were obtained for each of the semi-structured interviews.

This section outlined how the data was coded and represented. The overview of this can be seen in figure 3.6.

Figure 3.6 Overview of coding and representing the data.



All of the data from the pilot study was saved in the NVivo computer program. As recommended by Miles and Huberman (1994) an initial start list of codes was developed based on the conceptual framework, the research questions and relevant literature in the field of the research. The list was held lightly and revised during the Pilot Study phase.

The initial start list consisted of descriptive and interpretative codes using single terms (Miles and Huberman, 1994). Some of the codes were generated during the data analysis and as such were more akin to grounded theory however not in the purist way that Glasser (1992) advocates.

Table 3.11 Codes used in the Pilot Study (bold codes in the table were generated during the analysis of the data)

Availability	Fashion	Loss	School Systems
Belonging	Financial	Networked	Self-guarding
Blurring Boundaries	Friendships	Organisation	Social Status
Digital Development	Gender	Peer Pressure	Teaching and Learning
Digital Divide	Health	Safeguarding	Theft
Ethics	Identity	Safety	Value Sets

In total there were 43 possible codes. The codes were not defined at this stage. 24 are represented in table 3.11. The other 19 codes (seen below) were clustered together under seven generic headings:

1. Regulation – **punishment; encouragement; and letting off.**
2. e-safety – commerce; contact; content; and culture.
3. Pedagogy – constructionism; and behaviourism.
4. School systems – compatibility; relative advantage; observability; and conceptual value.
5. Use – texting; phoning; surfing the web; music; photo/video; and other
6. Relationship between people
7. Parenting

As Miles and Huberman (1994) note, coding qualitative data is a means of dissecting large amounts of transcripts into meaningful chunks, yet still keeping the relationships between the parts intact. The aim for the pilot study was to separate out the text and extract emerging themes so that reflections could be made about the information. The codes used by the researcher were tags attached to data of varying size from individual words to whole paragraphs. However it was found that using 43 codes (the codes not including the generic headings) did not highlight clear emerging themes so the codes were revised (Miles and Huberman, 1994).

3.5.2 Revision of Codes

The codes were revised as a result of the pilot study as advocated by Yin (2009) and Miles and Huberman (1994). There were three main reasons for revision of codes. These were:

1. Some codes were not used – some of the codes which were derived from the literature review such as ‘self-guarding’ were not used during the pilot study. These un-used codes were taken out of the overall coding scheme;
2. Some codes conceptually overlapped – some of the data were being coded with the same codes on a consistent basis. Where concepts were deemed to overlap, one code was identified and defined in the place of 2 or more codes; and
3. Some codes were generated based on field notes taken – some of the data needed coding with codes which had not been identified within the literature review. These codes can be seen in bold in table 3.11 (Table 3.11 codes used in the pilot study). These generated codes were also subject to revision in the review of the pilot study as they related to point 2.

As Case Study 1 and Case Study 2 replicated each other, the codes were only changed in the pilot phase. The revised coding scheme was re-tested on a sample of the pilot study data to identify if the data could be more easily classified using the new codes. No gaps in classification were identified.

Coding and recording are over when the analysis itself appears to have run its course – when all of the incidences can be readily classified, categories are “saturated”, and sufficient numbers of regularities emerge.

(Miles and Huberman, 1994 p. 62)

Definitions for the descriptive and interpretative codes were developed as a result of the pilot study to increase reliability.

The number of codes was condensed to 15. The following list was generated as the definitive coding scheme. The definitions were generated using a combination of information in the literature review and data from the Pilot Study.

Table 3.12 The definitive coding list

Code	Definition
Availability	The networking of an individual onto a conceptual grid so that they are available and feel that they are 'more available' as a consequence of technology.
Blurring boundaries	The crossing of physical, time and conceptual boundaries.
Compatibility	Feeling comfortable or uncomfortable with pedagogical approach used in having mobile phones in school.
Digital divide	An identified difference between two or more groups of individuals in relation to understanding or use of technology.
e-safety	The risk associated with the use of 'e-technology'. This includes risk of content, contact, commerce and culture
Financial	The cost of the technology. This includes reference to the packages e.g. unlimited texts.
Organisation	The co-ordination of people and resources.
Parenting	The facilitation of the extension of a wider reach of 'the home' beyond the physical house.
Pedagogy	Anything relating to the principles, practice or profession of teaching.
Peer interaction	An act performed with regards to peers. This includes social status, fashion, friendships and relationships between people.
Relative advantage	The belief that students and / or staff benefit more from the inclusion of mobile phones in school, than past practices.

Safety	Issues relating to danger or risk of injury; or freedom from danger or risk or injury.
Teaching and learning	Reference to the context of teaching and learning (predominantly classroom based or 'timetabled lessons'.
Value sets	These are personal to individuals in the context of Identity and Belonging. Self knowledge and individual responsibility.
Well being	Social, emotional and health of individuals.

3.5.3 Synthesising and re-combining

Once the data had been coded, a process of synthesising and re-combining the data took place. This follows Wellington's (2000) approach to making sense of qualitative data (figure 3.5) and required combining codes so that they could be brought together to form a complex whole picture.

During the re-combining of the data within the pilot study, three of the original codes emerged frequently. These three codes clustered with combinations of all the other codes. These three codes brought together a lot of material into meaningful and manageable units of analysis. Miles and Huberman describe these types of code as Pattern Codes (p. 69).

3.5.4 Pattern Codes

A third class of codes, *pattern codes*, is even more inferential and explanatory. A coded segment of field notes illustrates an emergent leitmotiv or pattern that you have discerned in local events and relationships.

(Miles and Huberman, 1994 p.57)

The four important functions of pattern coding are defined by Miles and Huberman (1994):

1. It reduces small amounts of data into smaller number of analytic units. (*Conducted in all phases of the study*).
2. It gets the researcher into analysis during data collection, so the later fieldwork can be more focused. (*Conducted in pilot study phase only*).
3. It helps the researcher elaborate a cognitive map, an evolving, more integrated schema for understanding local incidents and interactions. (*Conducted in all phases of the study*).
4. For multi-case studies, it lays the groundwork for cross-case analysis by surfacing common themes and directional processes. (*Conducted in case study phase only*).

(Miles and Huberman, 1994, p. 69)

The purpose of pattern coding in the study was to help evolve a cognitive map (point 3) at the individual case level and to prepare themes to be developed and analysed (point 4) at the multi-case level.

The three pattern codes were in the original list of descriptive and interpretative codes. They became pattern codes as patterns emerged within the case studies and the codes pulled a lot of material together (Miles and Huberman, 1994). The pattern codes which emerged from the study were:

Table 3.13 Pattern Codes and their definitions

Pattern Code	Definition
Teaching and Learning	Reference to the context of teaching and learning (predominantly classroom based or 'timetabled lessons').
Value Sets	These are personal to individuals in the context of Identity and Belonging. Self knowledge and individual responsibility.
Availability	The networking of an individual onto a conceptual grid so that they are available and feel that they are 'more available' as a consequence of technology.

The pattern codes had interpretative and descriptive codes which they were able to be associated with (Miles and Huberman, 1994). The relationship between the pattern codes and the other codes can be seen in table 3.14.

Table 3.14 Pattern Codes (Top) and their associated clusters of descriptive and interpretative codes (listed below respective pattern code).

<i>Pattern Codes</i>		
Teaching and Learning	Value Sets	Availability
<i>Descriptive and Interpretive codes</i>		
Relative Advantage	Peer Interaction	Parenting
Compatibility	Financial	Organisation
Pedagogy	e-safety	Safety
	Well being	Blurring Boundaries
		Digital Divide

Once the data from the pilot study had made sense as a result of revisions, the main case studies took place and the data collection was made sense of by using the same procedure by following Wellington's (2000) model.

3.5.5 Representing the data

The data from each case study needed to be re-combined in a coherent way. This was completed in two ways as described by Miles and Huberman (1994):

1. Segmenting the data into codes.
2. Separating the data from the different study participant groups (this was to gain clarity from the data and not for the purposes of comparing and contrasting group responses.)

An effects matrix for each pattern code was developed to display the data.

An effects matrix displays data on one or more outcomes, in as differentiated a form as the study requires. The label "effect" is used to remind the reader that outcomes are always outcomes of *something*: a global program, an independent variable, an intervening variable. There is always at least an implicit predecessor. The basic principle in an effects matrix is focus on *dependent* variables.

(Miles and Huberman 1994, p. 137)

The way the effects matrix works is illustrated in the narrative below in relation to figure 3.7.

Illustration 1: 'Code Y' in the 'teacher group' was identified by one or more participants reporting A, which had the effect of B on regulation and use of mobile phones.

Illustration 2: 'Code Z' in the 'parent group' was identified by one or more participants which had the effect of D on the regulation and use of mobile phones because of C.

Figure 3.7 Illustration of an Effects Matrix

Effect of <Pattern Code> on Use and Regulation - Cross Case Analysis – Replicated contributions			
	Code X	Code Y	Code Z
Pupils			
Teacher		A - B	
Parent			D - C

The purposes of the effects matrices are to separate out the different psychosocial factors (codes x, y and z) and their influences on each group (B and D in the illustration) in the form of a table. The matrices in the present study also include the observed behaviours and thoughts which were identified (A & C in the illustration).

As this is an exploratory case study, the emphasis has not been on manipulating independent variables, but on identifying possible independent variables which influence the dependant variable (Cohen et al, 2000; Miles and Huberman, 1994).

3.5.6 Relating to other work

The design of the effects matrices meant that the data from each case study could be related to each other to identify replicated and unique psychosocial factors.

The data from each case study were combined to form what is called a meta-matrix (Miles and Huberman, 1994). The meta-matrices were kept to the same specification as the individual case study effects matrices.

The purpose of the meta-matrix in this cross case analysis was twofold:

1. To identify replicated contributions between the cases; and
2. To identify unique (case specific) contributions within each case study.

The cross case analysis gave rise to further opportunity to go through the process of making sense of the data (Wellington, 2000).

3.5.7 Making sense of the data

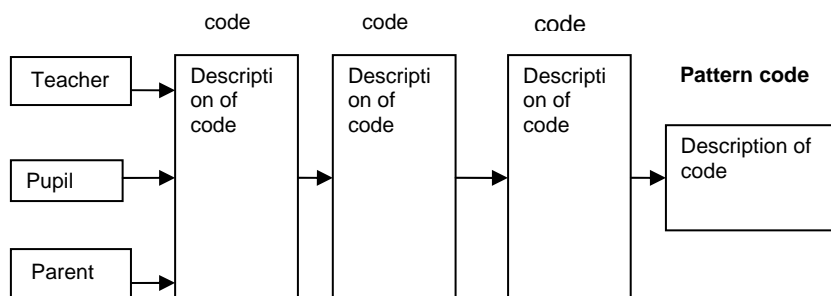
The coding of the data was scrutinised across the cases and raw data from each case study was compared to ensure consistency of the application of the codes and their definitions (Miles and Huberman, 1994). Any text which was inconsistent across the cases was re-analysed. Further classifying and categorising took place and the data was either re-coded or not coded.

The data was then re-combined and placed into the effects matrices for the purpose of presenting and disseminating.

3.5.8 Presenting the data

The data has been displayed in two ways:

1. Psychosocial factors which influence the use and regulation of mobile phones in high schools represented by chains of codes:



;and

2. Analysis which identified unique and repeated contributions within and between the case studies, represented in effects matrices and meta-matrices (figure 3.7 Illustration of an Effects Matrix).

3.6 A review of the major threats to reliability and validity and steps taken to control these

The following section reflects the considerations made of the strengths and limitations of the design outlined. The section sets out to make the reader aware of the threats to reliability and validity which were considered and the steps taken to control these threats.

Some writers believe that the concepts of reliability and validity are not vital in case studies and prefer the naturalistic research term of 'trustworthiness' where discipline and concentration focus on presenting a 'true' picture (Bassey, 1999; Gillham, 2005).

Yin's (2009) approach to case studies is arguably much more 'scientific' than others. Yin's approach is to make case studies more rigorous. In doing so, Yin uses the terms of validity and reliability. These terms are used in the present study.

3.6.1 Validity

Validity is about being accurate, or correct or true (Robson, 2002). It can be difficult to quantify the validity of an interpretive study. Yin (2009) presents 3 tests to validity (construct; internal; and external) and outlines case study tactics to address these (Internal validity is not a concern for exploratory case studies as the intention is not to determine whether event 'x' led to event 'y'). Table 3.15 outlines how these are reflected in this study:

Table 3.15 Review of relevant validity

Tests	Definition	Case Study Tactic	This study
Construct validity	Identifying correct operational measures for the concepts being studied.	Use multiple sources of evidence Establish a chain of evidence	Evidence is gathered from pupils, parents and teachers. A chain of evidence will be clear in the case study reports.
External validity	Defining the domain to which a study's findings can be generalised.	Use replication logic in multiple case studies	Replication logic will be used in cross case analysis.
Internal validity	Seeking to establish a causal relationship.	Not used in this study because it is mainly concerned with explanatory case studies.	

3.6.2 Construct Validity

Construct validity in relation to case studies is used to ensure that the case study investigator has developed a sufficiently operational set of measures and that “subjective” judgements have not been used to collect the data.

The validity of this methodology employs safeguards in the form of maintenance of a chain of evidence so that the research and research choices are clear and open to challenge (Yin, 2009). The case study reports have been placed in the appendix (Appendix 11 – Case study 1 report & Appendix 12 – Case study 2 report) and the results section is clearly presented.

3.6.3 External Validity

Yin (2009) identifies that external validity in relation to case studies is knowing whether a study's findings can be generalised beyond the immediate case study. Yin (2009) argues that replication logic is similar to the method found in multiple-experiment designs.

Upon uncovering a finding from a single experiment, an ensuing and pressing priority would be to replicate this finding by conducting a second, third and even more experiments. Some of the replications might attempt to duplicate the exact conditions of the original experiment. Other replications might alter one or two experimental conditions considered unimportant to the original finding, to see whether the finding could still be duplicated. Only with such replications would the original finding be considered robust.

(Yin, 2009 p. 54)

The rationale for using multiple case studies was the same rationale for adopting replication logic. Each case was carefully chosen so that it could show a literal replication as required to answer research question 2 and recommended by Yin (2009) when using 2-3 case studies.

'a literal replication predicts similar results'

(Yin, 2009 p. 54)

Figure 3.4 illustrates identification of cross case conclusions. The dotted line is important feedback which took place during the pilot study phase of my research. The use of multiple cases and replication logic meant that the sample size was not

the focus of the enquiry and the number of cases deemed necessary was judged to be adequate for the purpose (Yin, 2009).

It is recognised that the issue of geographical location may be perceived as affecting the validity of the study because similar variables such as socio-economic, employment and marital status of a particular geographical location might influence outcomes. These variables are not addressed. The case study purpose as stated previously is not intended to make statistical generalisations, but fuzzy generalisations and as such, geographical location was considered but not perceived as a threat to the validity of the outcomes. Individuals in different geographical locations will be able to accept the outcomes or use them to build on.

3.6.4 Reliability

The goal of reliability is to minimise the errors and biases in a study.
(Yin, 2003 p. 37)

The researcher's vested interest in the outcome of this research was in the theory development, as such there were no vested interests in one particular finding over another. As the case study explored a contemporary issue there was little evidence which could be directly attributed to the research questions posed. To minimise errors and bias the following was implemented:

Table 3.16 Review of reliability (adapted from Yin 2003 pp. 69; 102-105 and Gillham 2000 pp. 21-22)

Reliability	
Case Study Protocol	<ul style="list-style-type: none"> - An overview of the case study project was maintained (project objectives and auspices, case study issues, and relevant readings about the topic being investigated). - Field procedures were developed and followed (presentation of credentials, access to the case study 'sites,' general sources of information, and procedural reminders). - Case study questions were formed (the specific questions that the case study investigator must keep in mind in collecting data, and the potential sources of information for answering each question) - A guide for the case study report was used (outline, format for the data, use and presentation of other documentation, and bibliographic information)
Cases Study Data Base	<ul style="list-style-type: none"> - The computer program NVivo was used to create a case study data base which can be used for independent inspection of the responses. - Case study notes were made as a result of interviews and document analysis. - Case study documents were collected during the course of the study.
Maintaining a chain of evidence	<ul style="list-style-type: none"> - Information was collected so that an external observer could trace steps in either direction (from conclusions back to initial research questions or from questions to conclusions).

The use of validity and reliability measures were intended to create a 'trustworthy' research project. The outcome of the measures and the trustworthiness of the research are explored in the discussion chapter.

3.7 A discussion of ethical considerations pertinent to the study

The ethics of conducting case study research in a topic with little precedent meant that the issues had to be carefully considered in relation to the associated topics. Child protection and e-safety are examples of the issues which were required to be scrutinised.

The link between ethics and epistemology in social research is crucial. The beliefs that drive the methodology within the study also affected the ethical stance and ethics involved in the research (Scott and Usher, 1996). I believe that knowledge of intervention programs and policies is subjective and different elements of it are experienced by different people. As such there was a need to comment on other's interventions, policies and work. Accounting of these needed to be credible, and trust between myself, the head teacher and the participants needed to be built up (Cohen et al. 2001). Potential judgements of the school and policies were considered to be:

- The parents asked to comment on the school's interventions/policies;
- The parents asked to comment on relationships with staff and pupils;

- The pupils asked to comment on the school's interventions/policies;
- The pupils asked to comment on relationships with staff and parents;
- Teachers asked to comment on their own practice;
- Teachers asked to comment on school policies and provision; and
- The researcher (who is part of the school's wider support network) asked to comment on all areas raised.

Ethical implications for the aforementioned bullet points were perceived as impacting on the reliability of the study unless openness and good relationships were established where trust could be built up between the participants and the researcher.

Other key ethical considerations based on research as prescribed by the British Psychological Society (BPS) were also taken into account. Although strategies were put in place so as to ensure non-discriminatory sampling, not all were needed. The table below outlines the strategies planned for but not needed and those planned for and used.

Table 3.17 Ethical considerations based on guidelines from the British Psychological Society (Robson 2002)

Ethical considerations based on Ethical Principals for Conducting Research with Human Participants (British Psychological Society)	Strategies to address ethical requirements within the present study.
General – Investigation should be considered from the standpoint of all participants; threats to their psychological wellbeing, health, values	Questions were written so that individuals were not forced to reveal information which they did not want to share.

and dignity should be eliminated.	<p>Confidentiality and anonymity was maintained.</p> <p>Participation was voluntary.</p>
<p>Consent – The investigator should inform all participants of the objectives of the investigation. Research with children who have limited communication should have consent obtained from those in 'loco parentis'.</p> <p>Investigators should realise that they are in a position of authority and this relationship must not be used to pressurise participants to take part in or remain in an investigation.</p>	<p>Parents were notified of the research. Parents were asked for verbal consent to take part in the interview. A pre involvement letter was given to pupil's parents outlining consent with regards to their child. Systems were in place to identify vulnerable pupils. These were to be identified by the head of SEN and the researcher and careful consideration of their needs would have been documented if the sample had included them. Identified needs and ways of overcoming these if needed would have been used and evidenced in the case study protocol. For example, a child with hearing impairment may have required equipment during discussion in the interview.</p> <p>Participants were reminded at each point that they could withdraw at any time.</p> <p>Samples of the consent form can be found in the appendix (Appendix 13 – consent form)</p>

Deception – The withholding of information or the misleading of participants is unacceptable.	No information was withheld and no participants were misled.
Debriefing – Investigators should provide the participants with any necessary information to complete their understanding of the nature of the research. The investigator should discuss with the participants their experience of the research in order to monitor any unforeseen negative effects or misconceptions.	Briefing of the purpose of the research was clear and each participant received a case study report.
Withdrawal from an investigation – The investigator must make sure that all participants understand that they can withdraw from the investigation at any time (even retrospectively)	Participants were reminded that they could withdraw from the research at any time.
Confidentiality – Information obtained about a participant during an investigation is confidential.	<p>The names of schools and individuals were not used.</p> <p>It was possible that due to the small number of cases that individuals may be identified, the families involved therefore remained anonymous to the school.</p> <p>It was possible that due to the nature of the cases, that individual schools could be identifiable. This was made clear to all participants.</p> <p>Raw data will be destroyed 12 months after completion of the research.</p>

<p>Protection of participants – In research involving children, great caution should be taken to keep answers to questions private.</p>	<p>The answers that pupils gave were made anonymous. Quotes from pupils and parents were not linked by participant number so that trails of responses could not be formed. The views of parents and their children were not directly compared to increase the protection to participants' confidentiality. A procedure for disclosure was part of the study and participants were made aware of this.</p>

A submission of ethical considerations was made to The University of Birmingham prior to commencing the study. The ethics form can be seen in the appendix (Appendix 14 – Submission of ethical considerations to the University of Birmingham).

The maintenance of individual and institutional integrity was essential in all aspects of the research. Safeguards, such as confidentiality, were put in place to support this. The outcomes of the research were not used in any subversive way to apply pressure on to individuals, groups or institutions to change their policies or practice. Ongoing support has been offered if, as a consequence of this research, further development work was required within the schools. Guidance was given to pupils and or their parents if, as a consequence of this work they require further information with regards to any aspect of it.

3.8 Summary

This chapter has outlined the methodology of the research. It has evidenced choices made with regards to the decisions in methodology. The present study is unique in its choice of methodology when compared to similar research in the chosen field. The outcome has been that a rigorous, experiential study has been conducted.

The data gathering choices have been justified and the data analysis has been explained. Data analysis techniques have been scrutinised with anticipated limitations in mind. The following chapter is a logical presentation of the rich and complex data gathered which details the psychosocial factors and their influences on the participants within each case study and between the 2 case studies.

CHAPTER 4: RESULTS

The chapter presents the findings from the two case studies. The full case study reports can be found in the appendix (Appendix 11 – Case study 1 report & Appendix 12 Case study 2 report) and may be read as part of the chain of evidence which contributes to the results of the study.

Chains of evidence exist so that the research is clear enough for an observer to trace steps from conclusion back to the initial research question and back again (Yin, 2009). The chains of evidence presented are a logical path of procedures, protocols and data which have emerged from the case studies.

Psychosocial factors which have been found to influence regulation and use will be presented in sections: 4.1; 4.2; and 4.3.

The qualitative data collected from both case studies will form the basis of the evidence to answer research question 1 which is presented in 4.1:

1. How do psychosocial factors influence the use and regulation of mobile phones in high schools?

Section 4.1 combine all the data to identify psychosocial factors and represent these in the form of a figure. Both case studies have been merged to gather data for this section.

The chapter will then present the results of a cross-case analysis in section 4.2 and 4.3. These sections aim to contribute to research question 2:

2. How do unique cultures in the schools emphasise different psychosocial factors which influence pupils, teachers and parents in their regulation and use of mobile phones?

Sections 4.2 and 4.3 provide detail about the data which contributed to identifying influences of psychosocial factors by presenting the data collected as a cross case analysis. Section 4.2 presents the data which are replicated across both case studies. Section 4.3 presents the data which are unique to the case studies. The chains of evidence are maintained by using direct quotes from the field work thus maintaining the links between outcome and raw data.

4.1 Psychosocial factors

This section presents data which contribute to the understanding that psychosocial factors influence the regulation and use of mobile phones in schools.

The section is split into the three pattern codes:

- Teaching and Learning;
- Value Sets; and
- Availability.

4.1.1 Teaching and learning

Teaching and learning (pattern code definition)

– reference to the context of teaching and learning (predominantly classroom based or ‘timetabled time’ excluding lunch and break times).

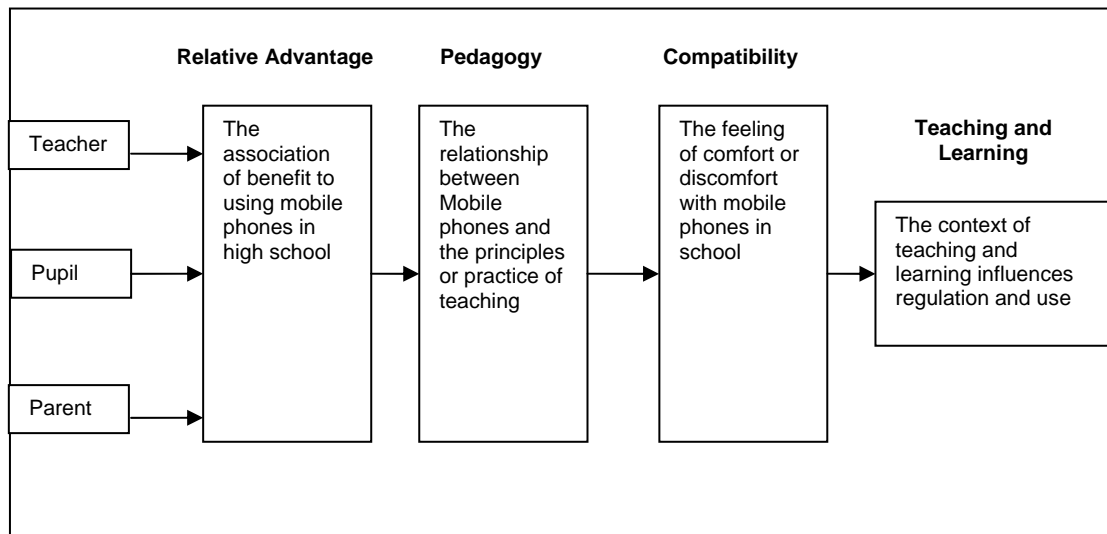
The responses from the teachers, pupils and parents in case study 1 and 2, provide evidence of psychosocial factors which contribute to Teaching and Learning identified as an outcome.

Teaching and Learning is reported in the following sections.

- Relative advantage
- Compatibility
- Pedagogy

Figure 4.1 makes sense of the evidence gained from the data by tentatively bringing together the sum of the parts which contribute to the outcome of Teaching and Learning influencing regulation and use.

Figure 4.1 Teaching and Learning overview



The data provided evidence for the logical chain of evidence which supports the outcome that the Teaching and Learning influences the regulation and use of mobile phones. The teacher, pupil and parent participants as cohorts mentioned all three psychosocial factors in relation to Teaching and Learning.

The views of the study participants varied in that opinion was divided between those who saw no benefit in relation to teaching and learning and those who could see a benefit. Both views were considered to influence regulation and use, either because mobile phone technology was not seen to be of any relative advantage in the teaching and learning context and was therefore not used, or it was seen to have some advantages and so was used.

I place a high value on my students' behaviour and providing a purposeful working environment. Anything which distracts from this I think is a problem, like phones.

(Teacher 11 case study 1)

I think phones could be used more for pupils / students to use as memory source for work / research facility.

(Teacher 10 case study 2)

I think <name> will occasionally use it to take a video, particularly if s/he's, sometimes they go on trips with school, they've had geography trips and sometimes s/he's taken a little clip of something they've been doing relating to the trip they've been doing you know that sort of thing.

(Parent case study 1)

Opinion was also divided between those who believed that mobile phones were nothing to do with the principles of teaching and those who did and split between those who felt comfortable with mobile phones in school and those who did not. Each view was seen to influence the regulation and use of mobile phones.

Yeah they're not meant to be allowed but teachers ...no its even though I think I they should be allowed I don't use it that often but I will use it but not all the time I still think you should be allowed them in case we need to contact anybody or tell somebody something.

(Pupil case study 1)

I feel comfortable with the use of mobile phones and understand how much pupils value them. Therefore I only feel they should be disciplined during lesson time or if they are acting irresponsibly.

(Teacher 10 case study 1)

I feel that they may be allowed to be brought into school for emergency use on the way to / from school, not used on school premises at all

(Teacher 8 case study 2)

4.1.2 Value sets

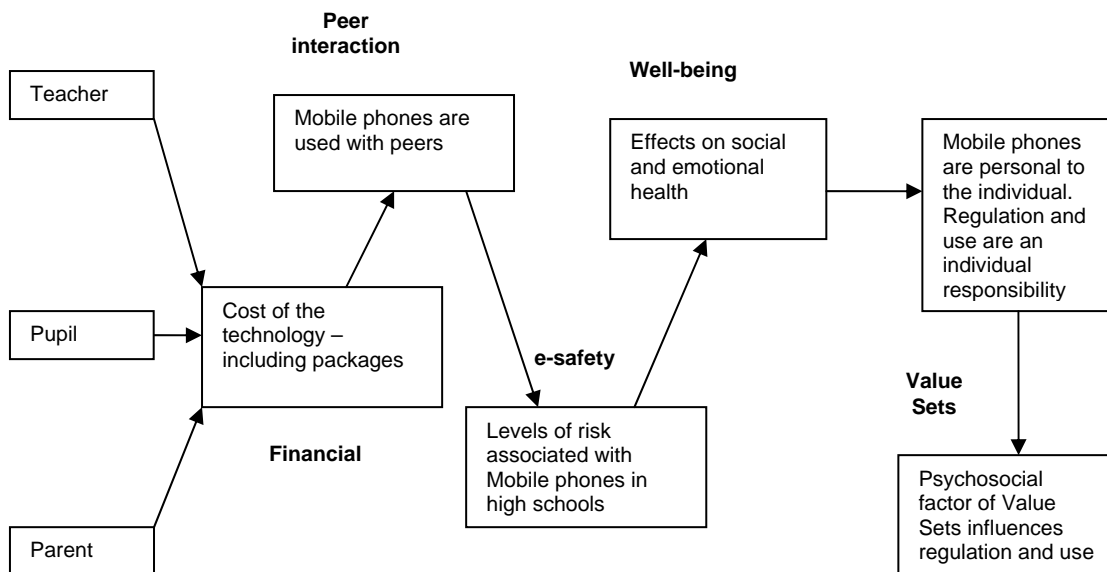
Value sets (pattern code definition)

- these are personal to the individual in the context of identity and belonging. Self knowledge and individual responsibility.

Value sets is reported in 4 sections.

- Financial
- Peer Interaction
- E-safety
- Well being

Figure 4.2 Value sets overview



The chain of evidence shows that all groups considered value sets to influence the regulation and use of mobile phones in school. The data finds that comments in relation to financial influences were universal and that this influenced use and regulation.

The cost is high so care needs to be taken by pupils to ensure safety.
(Teacher 2 case study 2)

I know she couldn't afford one herself and she wouldn't be able to even afford to put the credit on the phone so if I took it off her she wouldn't be able to replace it.

(Parent case study 2)

Its unlimited texts, so I mean there was a point where she was making calls and it was going over the amount that I paid each month so I just took the money back off her from her spending money. Her dad pays her spending money and I pay for her phone so I just take the money from her spending money.

(Parent case study 1)

All study participant groups mentioned how mobile phones were used as part of a peer group. This was seen to influence both the regulation and use of mobile phones in high school.

I feel that they (mobile phones) create tension / conflict and allow ongoing revisiting of the original dispute / falling out (between peers).

(Teacher 2 case study 1)

I don't know cos people (peers) use their phones a lot nowadays and I think they think if they don't have it someone could text me and I need to text back so they seem to always like to seem to have to have it with them so they can text back, its part of like a part of daily routine is to have your phone with you like to always have it like near you so you can text back if anyone, so its like people depend on their phone to contact people and talk to people and stuff.

(Pupil case study 1)

peer groups they are in probably the biggest... (mobile phone goes off in the background) ...as we speak, I suppose its that you want to be the same I think I think we all kind of have periods of, at this age erm where that's important, you want to be seen as being part of something er probably I'd say that's the biggest influence probably.

(Parent case study 2)

Views with regards to e-safety were split between those who only saw mobile phones as an e-safety risk either to themselves or the pupils and those who saw them as a low e-safety issue. Both views were considered to influence the regulation or use of mobile phones in high school.

It was interesting in your list you know like in bullying, I'm aware of these things but I don't in some respects regulate his/her phone.

(Parent case study 2)

Cyber bullying can happen in school and outside school. Problems occurring outside school can continue in school if mobiles are allowed to be brought into school.

(Teacher 9 case study 1)

The views about well being were split but all views were considered to influence the use and regulation of mobile phones in high school and were related to value sets.

I keep my phone with me at all times. Cos I don't want it to go missing cos I sort of have this thing, I don't know what it is but if I get nervous, if I don't have it like with me I'll start getting nervous and I'll start feeling quite panicky.

(Pupil case study 1)

I've gone out and I've left my phone at home and I hate it because I think should the school...all I think about is the children that should they want to contact me the school contact me and you know they can't.

(Parent case study 2)

4.1.3 Availability

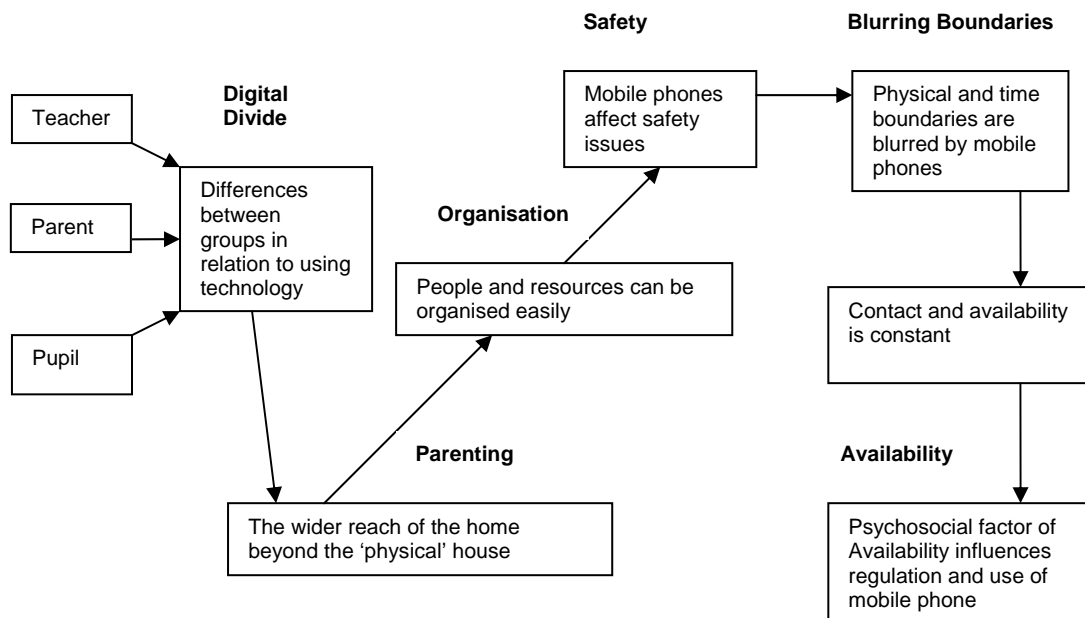
Availability (pattern code definition)

- the networking of an individual on to a conceptual networked grid so that they are available and feel that they are 'more available' as a consequence of technology.

Availability is reported in 5 sections.

- Parenting
- Organisation
- Safety
- Blurring Boundaries
- Digital divide

Figure 4.3 Availability overview



The chain of evidence shows that the teacher, pupil and parent participants as cohorts mentioned all five psychosocial factors in relation to availability as having an effect on the regulation and use of mobile phones in high school.

The data suggests that there was differing opinion between groups which could be associated with a digital divide and related to whether pupils needed to use mobile phones in school.

I have grown up with mobile phones therefore I understand what part they play in the present day culture.

(Teacher 6 case study 2)

I have a mobile, but make more use of a landline. I use the mobile for urgent calls when out and about so this would influence my view that for the most part, pupils don't need to access them during the school day.

(Teacher 8 case study 2)

Those who believed that a mobile phone was necessary to be in contact with parents as an aid to creating a wider reach of the home also indicated that mobile phones were needed for organisational issues. Others could not see the need of mobile phones for parenting or organisation.

If like I've like if badminton is cancelled then I can text my mum at lunch or something and text my mum and ask if she can come and pick me up or if I've forgotten a piece of homework or, then I can ring her for that.

(Pupil case study 1)

All participant groups recognised the influence that mobile phones had on safety but were split as to whether mobile phones made individuals more or less safe.

I feel that mobiles can be useful for personal safety, but can cause a false sense of security.

(Teacher 2 case study 1)

...parents, er, friends I guess cos I don't know, I don't know why I brought my phone in *(to school)* I just, it's just for safety that's all...

(Pupil case study 2)

I am not sort of, I don't need to find out every minute of the day where they are sort of thing but if she is going to go to a friends after school or at the weekend then that's fine but just tell me what your plans are then I know what I can do, you can go off and do your thing and I know you are safe, that's all, that's sort of the way it works between us.

(Parent case study 1)

There was also recognition that as a consequence of mobile phones, boundaries had been blurred and that this had an influence on regulation and use of mobile phones. All of these psychosocial factors contributed to the participants feeling that the mobile phone users were more available and this influenced the use and regulation of Mobile Phones in high schools.

A major problem here is that if there has been an incident / falling out between pupils in school, in previous time's pupils would have gone home, cooled off and come in the next morning possibly in a more positive state of mind. With mobile phones, comments / arguments can continue and in some cases drag other participants in. The ability to 'have your say' immediately without time to reflect on the consequences is I find a major problem. Adolescents in some cases have not developed the social skills to foresee the implications of things written and said in haste. Mobile phones in some cases have allowed incidents to be blown up out of all proportion.

(Teacher 13 case study 2)

I don't really have friends who don't go to my school but other friends do and some go on facebook (on their mobile phones) and stuff.

(Pupil case study 2)

Sometimes like I text her (mum) if I have got a good result in a test erm. Sometime I text my friends at break and lunch who are like out of this school and erm yeah.

(Pupil case study 1)

I would say that in <name> case she uses it just to let me know things, if she's upset shell send me a text, she doesn't always expect one back but she will send me a text just to get it off her chest.

(Parent case study 1)

4.2 Cross case analysis – replicated contributions

In this section the qualitative evidence gathered from semi-structured interviews will be presented alongside the qualitative data gathered from the questionnaire. The teacher, parent and pupil participants will be represented. Key concepts have been extracted from the data.

The key concepts from the data from each case study have been compared; these have been termed 'Replicated contributions'. Psychosocial factors which were repeated across both cases have been placed in a table as described in the methodology section and are shown at the beginning of each pattern code. A sample of one can be seen below.

Figure 4.4 Example of table used to represent each pattern code, psychosocial factors and participants

Effect of <Pattern Code> on Use and Regulation - Cross Case Analysis – Replicated contributions			
	Psychosocial factor	Psychosocial factor	Psychosocial factor
Pupils			
Teacher			
Parent			

The identification of similarities aims to contribute supporting or conflicting evidence to the proposition that unique school cultures have an influence on the regulation and use of mobile phones in schools.

The tables present the effects of the psychosocial factor's influences on the study participants' regulation and use of mobile phones in high school. This chapter reports on the pattern code teaching and learning; value sets; and availability.

4.2.1 Effect of teaching and learning on regulation and use

Teaching and learning (pattern code)

- reference to the context of teaching and learning (predominantly classroom based or 'timetabled time' not including lunch or break time).

Coded psychosocial factors are separated into the three case study participant groups. Each descriptive and interpretative code is reported in the following sections.

- Relative advantage
- Compatibility
- Pedagogy

Table 4.1 Effect of teaching and learning on use and regulation - cross case analysis – replicated contributions

	Relative Advantage	Compatibility	Pedagogy
Pupils	Influences pupil use because pupils see mobile phone as an addition to teaching and learning rather than essential to teaching and learning	Influences pupil use to some extent when the belief is that mobile phones are distracting in lessons Understanding of rules does little to alter pupil use	
Teacher	Influences teacher use as mobile phones can be used for specific purposes Influences teacher use when no relative advantage to having mobile phones in school is seen	A belief that mobile phones are not compatible with teaching and learning influences teacher regulation A belief that mobile phones can be compatible with teaching and learning context influences teacher use The regulation of mobile phones is altered if teachers believe that it is ok to use mobile phones in school but not in lessons	
Parent		The belief that that mobile phones can be disruptive in lessons influences parent regulation	Those parents who believe that mobile phones relate to the broad principles of teaching are influenced in their regulation.

4.2.1.a Relative advantage

– the belief that students and / or teachers benefit more from the inclusion of mobile phones in school, than in past practices.

The pupil participants in both cases could not see any relative advantage to using their mobile phones in their curriculum learning. The mobile phones were seen as an addition to teaching and learning rather than a necessity.

... I videoed something the other day in school, we made a massive paper chain in chemistry, it was erm, meant to be a polymer or something so made a massive paper chain which was like the length of the quad.

(When asked why it was recorded)

Just cos it was fun. (laugh)

(Pupil case study 1)

We are not allowed to use it for (listening to) music anymore. I think you should be able to use it for music. But not like texting or taking pictures or anything like that.

(Pupil case study 2)

Views within the teacher participants in both case studies showed that there was a view that mobile phones gave no advantage to teaching and learning.

I think phones are a distraction. I feel that is unnecessary and inappropriate for students to carry mobiles around (or use them) whilst at school. I believe that mobile phones are a necessary evil but should not be used in schools.

(Teacher 11 Case study 1)

Views in both case studies also showed that teachers reported that mobile phones could be used to a relative advantage when used in school for a specific purpose.

[I] Accept [mobile phones as] part of modern social life so utilise if possible in constructive way to engage students.

(Teacher 7 case study 1)

They [mobile phones] can enhance learning in some lessons e.g. p.e. - videoing a trampoline routine and using this for peer and self assessment.

(Teacher 3 case study 2)

No parental comments in relation to relative advantage were replicated across the cases.

4.2.1.b Compatibility

– feeling comfortable or uncomfortable with the pedagogical approach used in having mobile phones in school.

The pupil participants from each school realised that mobile phones were distracting in lessons and felt comfortable with the teachers approach to regulation of mobile phones in the teaching and learning context. This was replicated in both case studies even when the pupil disagreed with the pedagogical approaches of regulating mobile phones in the broader context of the school.

in class they distract the lesson so they will take it off you cos your not listening and yr 10 is an important year really so if you if cos like if people would take the phones off you if your not listening cos you need to know for your GCSE's coursework and stuff and if people are on you phone your not, you don't really pay attention when your on your phone and your not listening.

(Pupil case study 1)

We should be allowed them (mobile phones). Erm but I don't think I don't agree with people texting during lessons cos we are not actually allowed them in school but we should be allowed them but not during lessons. I think you should get your phone taken off you if you are texting during lessons. But I think you should be allowed it anyway.

(Pupil case study 2)

The pupil view indicated that there was a comfortable feeling with using mobile phones in high schools. The data indicated that although there was an understanding of the rules of the school, it did little to alter the use of the mobile phone.

Teachers in both case studies had varying views. Responses from the teachers indicated that mobile phones were not seen as being compatible with the teaching and learning context. This was qualified by the teachers identifying them as having limited use for the curriculum and the increased risks that they posed within the school environment.

I don't want them out in the classroom - I would worry about inappropriate pictures, recording and also the distraction from lessons.

(Teacher 12 case study 1)

Other views from teachers across both cases related to the compatibility of mobile phones in high schools as long as they were carefully regulated.

I feel that if it could be regulated in school they could be used in lesson easily. I believe that most subjects would benefit from the use of mobile phones.

(Teacher 6 case study 2)

Other views in both cases from teachers showed that although teachers felt that mobile phones were not compatible with the teaching and learning context, it was alright for the pupils to use them in school.

I feel comfortable with the use of mobile phones and understand how much pupils value them. Therefore I only feel they should be disciplined during lesson time or they are acting irresponsibly.

(Teacher 10 case study 1)

Parents in both case studies reported that they felt that mobile phones were likely to be disruptive in the teaching and learning context.

I don't agree with them using them in schools as you know all the time during lessons.

(Parent case study 1)

It can be disruptive and in a classroom of 30 children their phones going off every 5 minutes, I don't think it's (allowing phones in a teaching and learning context) a good idea.

(Parent case study 2)

4.2.1.c Pedagogy

– Anything relating to the principles, practice or profession of teaching.

Teacher and pupil comments which were coded as relating to Pedagogy were not replicated across both cases. There was one psychosocial factor which was coded as relating to pedagogy from parents which was replicated in both case studies.

Parents reported that mobile phones should be allowed in schools and as such related to the principles of teaching.

I don't know cos I think they should be allowed mobile phones in schools
(Parent case study 1)

I don't know whether I'm influenced by the school, I suppose if I was maybe I would say she couldn't take the phone to school at all but I just think I'm a better judge of that and I do think that she does need it.
(Parent case study 2)

4.2.2 Effect of value sets on regulation and use

Value sets (pattern code)

– these are personal to the individual in the context of identity and belonging. Self knowledge and individual responsibility.

Each descriptive and interpretative code within value sets is reported in the following sections.

- Peer Interaction
- Financial
- E-safety
- Well being

Table 4.2 Effect of value sets on use and regulation - cross case analysis – replicated contributions

	Peer Interaction	Financial	e-safety	Well being
Pupil	<p>Pupils use is influenced by the sense of belonging the mobile phone brings a to a group</p> <p>The mobile phone adds to identity and this influences pupil use</p>	<p>The cost of services influences pupil regulation and use</p>	<p>Individual responsibility influences pupil's use and regulation</p> <p>Pupils use is influenced by the belief that teachers will regulate more if there are breaches in e-safety</p>	
Teacher	<p>The belief that pupils are influenced to use mobile phones to be part of a group influences teacher regulation</p>		<p>Teachers regulation is influenced by the use of inappropriate pictures and texts</p>	
Parent	<p>Parental regulation is influenced as the pupil uses the mobile phone to keep in touch with friendship group</p> <p>Gadgets on the mobile phone are influenced by peers and this influences parent regulation</p>	<p>Parental regulation is influenced by the cost of phone as this influences type of phone chosen</p> <p>Parental regulation is influenced by the type and cost of contract</p>	<p>Parental regulation is influenced by a perception that a mobile phone has a low level of risk associated with it</p>	<p>A belief that mobile phones can effect emotional health influences parent regulation</p>

4.2.2.a Peer interaction

– an act performed with regards to peers. This includes social status, fashion, friendships and relationships between people.

Peer interaction had an influence on pupil's use of the mobile phone. The strength of influence of peer interaction led to pupils in both case studies reporting that they openly broke school rules. The example cited in both groups of pupils was that of taking photographs in school. Even though taking photographs was reported by the pupils as being banned, this rule did not stop pupils taking photos.

Yeah I was just about to say that, well if other people are taking photos then I will, I don't, yeah then I will sometimes.

(Pupil case study 2)

Pupils in both schools reported that they felt a sense of belonging and identity on account of their mobile phone. This was represented in different ways from sharing a common set of values to being included within a group.

... cos a lot of my friends are brought up in a similar sort of way to me so we know when to use it and when not to use it.

(Pupil case study 1)

I don't really think of it because, I don't know, I don't think of anyone, I don't know, I know that everyone has a mobile phone in school even though you are not allowed, its norm... <CB were you about to say its normal?> yeah, cos if somebody says to me that they don't have their phone with them I just think why not? Even though the rule is that you're not meant to have them so they're actually right! For not having their phone!

(Pupil case study 2)

Parents' views in both case studies identified the influence of peer interaction and the desire to have their child included. This meant that parents might actively encourage their children to use mobile phones.

... with the music thing they don't do it as much now but I used to notice kids all over rapping into their phones erm I just thought it was interesting and in some respects I did encourage it.

(Parent case study 2)

She's a very sociable person all her friends contact her a lot so I just never taken it into consideration about any factors of regulation.... She's got friends at <name of different school> and at <name of another different school> so <name of pupil> uses it as keeping in touch with her friends but for any other reason in school, I don't know.

(Parent case study 1)

Teachers in both case studies also recognised that peer interaction influenced pupil's use of mobile phones as they wanted to be part of a group.

Competition between pupils on who has latest gadget, off-putting to those with an older phone or ipod. (Influences how I regulate)

(Teacher 7 case study 2)

Presumably there is also some peer pressure involved and children fearing they'll feel or be left out of things.

(Teacher 6 case study 1)

4.2.2.b Financial

– The cost of the technology. This includes reference to the packages e.g. unlimited texts

The parent, teacher and pupil participants in both case studies identified the influence of cost on the regulation and use of mobile phones.

You can upload things via your phone but that doesn't really happen that often in school... I don't want to buy cos you have to pay £4.50 a week, it's really ridiculous.

(Pupil case study 1)

She <name> has her phone on a contract which formed part of her birthday and Christmas present so she knows how long she can use it for, how many texts, how many minutes she's got, this kind of thing and she knows that if she goes over that then she has to pay for whatever....when I get my bill, if the bill is the right amount of money she's not gone over it then I know she's not spending too much time or money or what ever.

(parent case study 1)

(Influence on use) texting remains almost free / re bundles even on pay as you go O2 which is 13/20 in group use (year 10).

(Teacher 10 case study 2)

4.2.2.c e-safety

– The risks associated with the use of 'e-technology'. This includes risks of Content, Contact, Commerce and Culture.

Participants in all three groups in both case studies made reference to e-safety issues but the views on e-safety were different.

The parents and the pupils reported that mobile phones presented as a low risk in relation to e-safety issues in high schools. This perception influences regulation and use of them in high school. The pupils related e-safety risks to their individual responsibility and saw it as a reduced threat because of their understanding of mobile phones.

I knew that (people being able to access information on your phone via Bluetooth) anyway but I think once we had an assembly on it where somebody in the past had their pictures taken off their phone and they went on the internet or something.

(Pupil case study 2)

Pupils in both case studies also identified how the phone was used as an influence on regulation. If the phone was being used where there were more e-safety risks then it was likely that this would influence teacher regulation and as such the pupils used mobile phones less in a way which might breach e-safety.

They (teachers) don't like you taking pictures cos you can just send them to anyone or people can get on to your phone, my phone does that, I can get on to my friends without them knowing <CB oh right and then what can you do?> I can get their photos or anything so that's why they don't like you taking photos because you can just, other people can get them.

(Pupil case study 2)

Parents in both case studies reported that out of all of the technologies available to children, that the mobile phone was the least risky. This was also influenced and balanced by advantages such as personal safety which the mobile phone gave.

In school, er, its difficult because I can understand why kids want to take them to school. Some of it is going to be you know oh look at my phone its the best newest all singing all dancing whatever, erm and if people are going to be bullies or if they're going to be that way out anyway its just another tool, its not necessarily because they've got a mobile phone they're going to beat somebody up or whatever. It's just another tool to what they were going to do anyway. That's my view on it erm and that's probably where school regulation has to somehow come in but I don't know how you would monitor that.

(Parent case study 1)

It was interesting in your list you know like in bullying, I'm aware of these things but I don't in some respects regulate his phone... maybe images that should not be on there, I wouldn't actually know.

(Parent case study 2)

Teachers identified several e-safety risks as influences on their regulation. The risk to the pupils was replicated across the case studies.

Cyber bullying can happen in school and outside school. Problems occurring outside school can continue in school if mobiles are allowed to be brought into school.

(Teacher 9 case study 1)

4.2.2.d Well being

– *social and emotional health of individuals.*

The parents' responses in both case studies were that mobile phones had an effect on wellbeing. Parents reported that they trusted pupils to make appropriate judgements with regards to their own well being and their personal use of the mobile phone.

I don't check her phone for messages or photographs or anything like that because, conversation between us, we have to trust each other you know we all like our own privacy but if I feel there is anything strange going on or if she was upset for any reason or kept switching her phone off, or if there was anything unusual, any unusual behaviour then I would say I think I need to look at something, I wouldn't like to go behind her back to do that, we've got quite a good relationship, we do talk to each other,

(Parent case study 1)

I suppose cos once she's at school I don't really know who's she's phoning nor who she's texting apart from the itemised bill. I mean you could easily find out who's are the numbers but for me to look into the numbers I'd have to suspect that there was something wrong, or she was having a problem or doing something wrong on it so. I just don't. She's not the type of person and I suppose that I don't feel the need to do that she'd have to change quite a lot for me to think that there was any problems.

(Parent case study 2)

The effect of mobile phones on wellbeing is an influence on the regulation and use of mobile phones which can be seen replicated across the two cases in the parent participants.

4.2.3 Effect of availability on regulation and use

Availability (pattern code)

- the networking of an individual on to a conceptual networked grid so that they are available and feel that they are 'more available' as a consequence of technology.

In both case studies, both the parents and the pupils made statements which were replicated across the cases for all of the psychosocial factors with the exception of the pupils not referring to Digital Divide.

The responses from the teachers which were replicated across both schools identified that the influence of availability had some effect on teacher regulation.

Each descriptive and interpretative code is reported in the following sections.

- Parenting
- Organisation
- Safety
- Blurring Boundaries
- Digital divide

Table 4.3 Effect of availability on use and regulation - cross case analysis – replicated contributions

	Parenting	Organisation	Safety	Blurring Boundaries	Digital Divide
Pupils	<p>The belief that the pupil needs to be able contact parents influences pupil use</p> <p>The belief that the pupil needs to be contactable for parents influences pupil use</p>	The co-ordination of people and resources influences pupil use	<p>A belief that the mobile phone is needed to inform parents as to where they are influences pupil use</p> <p>A belief that the mobile phone makes them safer influences pupil use</p>	<p>Pupil's use is influenced by their ability to contact other pupils in and out of their school</p> <p>Pupil's use is influenced as they disregard time and space to text parents as the parent is available</p>	
Teachers			<p>A belief that mobile phones can make children more vulnerable influences teacher regulation</p> <p>Some belief that children are safer with mobile phones -influences teacher regulation</p>		
Parents	The mobile phone allows the reach of the home to be extended across time and space influences parent regulation and use	The need to organise modern life influences parent use regulation	Belief that children are safer with a mobile phone allowing for greater independence influences parent regulation	The availability of parents and children blurs traditional 'school' boundaries and this influences parent use	Availability is taken for granted as pupils have grown up being available so this influences parent use regulation

4.2.3.a Parenting

– the facilitation of the extension of a wider reach of ‘the home’ beyond the physical house.

The pupils in both case studies reported that they felt that they needed to be in contact with their parents. The pupils also reported that they felt that they needed to be contactable for their parents. Both of these factors influenced their regulation and use of the mobile phone. Pupils reported keeping their mobile phone on so that they were available.

If I think I just need to send my mum something, I just get it out and text her.
(Pupil case study 2)

erm again if my parents text me I'd just text them back because like they need to know if they are asking me a question I'll have to text back because then they might like get worried or something if I have not text back cos they know I love my phone cos I really do and if I don't text back they might think like there might be some thing I don't know, upset or something, I've like lost my phone or something, but they don't text me that often but if its to like to let me know something like they're not going to be home or like on time then they'll let me know and stuff so.....

(Pupil case study 1)

Parents in both case studies reported that the mobile phone enabled them to keep in contact with the pupil. This extended the reach of the home and although they knew they could use the school office, the ease of the mobile phone influenced their regulation and use of them.

I like her to have a mobile phone so I can keep in contact with her so yeh its my influence and I suppose peer pressure as well, if I didn't think she needed a mobile phone then peer pressure doesn't so it is my decision (for pupil to take a mobile phone to school).

(Parent case study 1)

Well I let them take them into school, to be honest doing this, its quite, you know things go on and I'm kind of thinking, why do I?.... I suppose just to have that contact say if I was at work and I couldn't get back and things like that or maybe they weren't feeling well or something plus its that contact. Saying that in all honesty when I was at school the secretary would phone parents or whatever so its interesting its brought things up which maybe I'm thinking about erm. I suppose it just carries on, they just take their phone with them and it's not thought about really erm so something like this raises your thoughts a bit.

(Parent case study 2)

Comments from teachers in both schools did not refer to the parenting element of availability.

4.2.3.b Organisation

– the co-ordination of people and resources.

Both the parents and the pupils reported that the mobile phones were used to co-ordinate each other and physical resources such as books, homework or P.E. equipment which may have been left at home. This relationship was found in both case studies and was reciprocal in nature, where the pupils co-ordinated their movements and parents also used the mobile phone as a way of co-ordinating their movements.

I think once they get to secondary school, I don't think they need to take them to primary school. Because once they do go to secondary school they are gaining more independence and they might be further away from home, they may have to get buses, you know the activities after school, that sort of thing and I think they probably need to be contacted or contactable.

(Parent case study 1)

Yes (use it for phoning), at lunch time, not during lessons, just at lunch time and break time usually just to contact my parents <CB Q What would be the reason?> erm just but cos like say if we needed something I'd like ring them or say I'm doing something after school I'd ring them cos if they don't, my parents say if they don't ring back, ring them cos they might not have got the text, they might have been doing something but if they get a missed call then they can ring back.

(Pupil case study 1)

I use it for everything <CB Q can you tell me what everything is?> I don't know, like the other day I was reminding my mum to pick me up from gym and cos she's forgetful so I just reminded her I don't know.

(Pupil case study 2)

Comments from teachers from both schools did not refer to organisation.

4.2.3.c Safety

– issues relating to danger or risk of injury; or freedom from danger risk or injury

Parents and the pupils identified that being able to co-ordinate movements made them both feel safer. It was also mentioned as a specific point in relation to a wider sense of belonging which makes the individual feel safe.

... erm if I am going out with my friends I will use it to ring up my mum or my dad or whoever is at home at the time, or if I'm doing something and I cant ring them I'll give them a quick text <CB Q For what purpose is that?> well to like let them know where I am if I go into (place name) meet my friends and we get the bus to (place name) then I'll text them to say that I'm safe or whatever.

(Pupil case study 2)

...parents, er, friends I guess cos I don't know, I don't know why I brought my phone in *(to school)* I just, it's just for safety that's all...

(Pupil case study 2)

Parents perception appeared to be that there were increased benefits with regards to safety, to pupils owning and using a mobile phone which outweighed any potential risks.

I do think that she does need it cos she's 3 miles from home she gets the bus so if the bus doesn't turn up which quite oftenthe last year that quite often happened, they had problems with the bus, she can ring me and I'd rather she had her phone and disobeyed school than be start walking home because she couldn't ring me.

(Parent case study 2)

Teachers in both case studies identified that pupils were at risk of being more vulnerable as a consequence of mobile phones. Teachers in both case studies also reported that they understood how mobile phones might increase safety coming to and from school. The safety needs of the pupils influenced their regulation of mobile phones in schools.

(Influence on regulation) I feel that they can leave some children vulnerable.

(Teacher 2 case study 2)

I feel that they may be allowed to be brought into school for emergency use on the way to / from school, not used on school premises at all.

(Teacher 8 case study 2)

I appreciate that pupils (especially 21st century ones) should have phones in bags in case of emergency - I know I couldn't relax if I didn't have mine.

(Teacher 8 case study 1)

4.2.3.d *Blurring boundaries*

– the crossing of physical, time and conceptual boundaries.

The cross case data identified that the ability to blur the boundaries of school and time, are recognised by parents and pupils as an influence on the regulation and use of mobile phones. Pupils report that they text parents at home, pupils from other schools, pupils not in their class but in the same school and pupils in their class.

... some people text the same people in the same class sometimes its like, say if they're not allowed to talk, they'll text them instead and they'll text back, they'll sort of have a conversation from across the classroom.

(Pupil case study 1)

Parents, as previously stated, text pupils in school and are aware of the implications of their actions which blur the boundaries. The belief that people are available was reported by parents in both case studies as an influence.

It's the norm now that you are contactable 24 hours a day wherever you are
(Parent case study 1)

The influence of living with blurred boundaries influences parental regulation. The teachers made no replicated reference to blurred boundaries.

4.2.3.e Digital divide

– An identified difference between two or more groups in relation to understanding or using technology

Only the parent participants from both case studies reported that availability of people was taken for granted as a result of a digital divide. The parent participants related this to the concept that the pupils had grown up with the technology so pupils have always been available to others and others have always been available to them.

I think that's (being available) what they've grown up with so that if they feel they have to ring their friend at another school or text their friend who goes to another school or parent then they can, and so they do.

(Parent case study 1)

I am going back some years when I was at school and I think we didn't have them, you don't need to be in contact with people 24 / 7 that's my view anyway....probably a very old fashioned one (view) now but there are times when you can turn them off.

(Parent case study 2)

4.3 Cross case analysis – unique contributions

In this section the qualitative evidence gathered from semi-structured interviews will be presented alongside the qualitative data gathered from the questionnaire. All unique contributions from the teachers, parents and pupils will be presented.

Unique contributions are responses from one case study which were not mentioned by any participants in the other case study and all of these are presented in the tables.

Case study 1 is presented first which is then followed by case study 2. The tables have been kept the same. All three pattern codes are presented and then the results of unique contributions for each case study are reported.

4.3.1 Case study 1 – unique contributions

The results for case study 1 are presented in the following tables and specific attention has been given in the summary when the same comment has been made by more than one participant from the same group. These comments have been highlighted as they were replicated within the same school and as such may have more external validity within the constraints of the case study methodology.

Table 4.4 Effect of Teaching and Learning on Use and Regulation - Cross Case Analysis - unique contributions case study 1

	Relative Advantage	Compatibility	Pedagogy
Pupils		Used for recording creative work influences pupil use	Pupil's use of mobile phone is influenced because people are used to mobile phones The focus on learning in yr 10 influences pupil use
Teacher			
Parent	Has seen it used on field trips to record information and this influences parent regulation	The use of internet on mobile phone is not needed as school has fixed computers so this influences parent regulation	

Table 4.5 Effect of Value Sets on Use and Regulation - Cross Case Analysis - Unique contributions Case Study 1

	Peer Interaction	Financial	e-safety	Well being
Pupil				Being without phone challenges identity and belonging and elicits physical reaction which influences pupil use
Teacher	Experience of peer interaction causing disputes influences teacher regulation		Experience and concern over theft of phones influences teacher regulation	
Parent	Peer / social expectation that everyone has a phone influences parent regulation			<p>Pupil's reactions when mobile phone is taken away influences parent regulation</p> <p>Concerns over pupil's dependency on mobile phone influences parent regulation</p> <p>Trust in individuals responsibility to approach parent if wellbeing effected influences parent regulation</p>

Table 4.6 Effect of Availability on Use and Regulation - Cross Case Analysis - Unique contributions Case Study 1

	Parenting	Organisation	Safety	Blurring Boundaries	Digital Divide
Pupils					Mobile phones have always been a part of children's life influence child use
Teachers	Pupil and parent's need for 'emergency calls' to or from home influences teacher regulation			Pupils communicating between classrooms influences teacher regulation Pupils communicating between schools influences teacher regulation	Children not able to put things off influences teachers perception of child use
Parents					

4.3.2 Summary of unique contributions case study 1

The contributions made in case study 1 which were not made in case study 2 can be classified as individual comments from 1 participant or comments made by more than one person. There was only one comment in case study 1 which was repeated by one or more individuals. This comment was from the teacher participant group and related to how mobile phones blurred boundaries and the influences that this had on regulation of mobile phones.

Pupils seem to text each other constantly (form of gossip - used to be passing notes in class - now can be done between classrooms!)
(Teacher 12 case study 1)

The parent and pupil comments which were unique to case study 1 were only mentioned by one participant in that case study. Detailed breakdown of the results can be found in the appendix (Appendix 15 – Unique contributions full report).

Overall, it can be seen that only 13 of the total 36 cells in the table have unique contributions in case study 1. It can also be seen that no one particular study group reported more unique contributions than the others.

4.3.3 Case study 2 – unique contributions

The following section details unique contributions made in case study 2 and are presented in the same format as they were for case study 1 – unique contributions.

Table 4.7 Effect of Teaching and Learning on Use and Regulation - Cross Case Analysis - Unique contributions Case Study 2

	Relative Advantage	Compatibility	Pedagogy
Pupils			The school rules influence teacher regulation and influences pupil use
Teacher	Some teachers can't see any advantages but feel there should be some so influences teacher use regulation	Experiences of more negative than positive outcomes influences teacher regulation	Different conceptual understanding of use influences teacher regulation Concerns with technology which are less easily regulated influences teacher use Policy guidance on regulation influences teacher regulation
Parent			

Table 4.8 Effect of Value Sets on Use and Regulation - Cross Case Analysis - Unique contributions Case Study 2

	Peer Interaction	Financial	e-safety	Well being
Pupil				
Teacher		Teachers have to balance non-compulsory use of phones in lessons as they can't assume everyone can afford one with the gadgets to be used for learning this influences teacher use		There is an understanding that mobile phones are part of youth culture and are important to pupils and this influences teacher regulation
Parent	Belief that child is with friends and so will not text their friends influences parent regulation			A feeling of discomfort when being without phone influences belief that children also need to be with their phone and this influences parent regulation

Table 4.9 Effect of Availability on Use and Regulation – Cross Case Analysis - Unique contributions Case Study 2

Effect of Availability on Use and Regulation – Cross Case Analysis - Unique contributions Case Study 2					
	Parenting	Organisation	Safety	Blurring Boundaries	Digital Divide
Pupils					Children have their phones on all the time which influences pupil use
Teachers		<p>An understanding that mobile phones are used to contact home influences teacher regulation</p> <p>Some teachers take advantage of children's mobile phones to sort out after school club arrangements and this influences teacher regulation</p>			<p>A belief that mobile phones should be for emergencies only and the school can provide communication in an emergency so mobile phones are not needed, this belief influences teacher regulation</p>
Parents					

4.3.4 Summary of unique contributions case study 2

Two of the comments unique to case study 2 were repeated by two or more people. The first was in relation to well being. More than 1 teacher participant in case study 2 recognised that mobile phones were important to pupils and were part of youth culture.

I realise how important a mobile phone is to the individual and if the individual is co-operative then the phone is usually returned either at the end of the lesson, or day.

(Teacher 6 case study 2)

The second comment which was repeated by more than one participant in case study 2 also came from the teacher participants and was also reflected in one comment from the pupil participants and it was with regards to Pedagogy. Teachers follow policy guidance on regulation and this was seen to influence their regulation and use of mobile phones.

I hope that my personal views don't influence me too much. I follow school regulation.

(Teacher 2 case study 2)

I just follow the school rule - no unauthorised use. If children ignore that then I'll confiscate (usually I give a warning and if that ignored confiscate).

(Teacher 4 case study 2)

It can be seen that only 12 out of the total 36 cells have produced unique contributions. The teachers in case study 2 contributed most of the unique contributions.

4.4 Summary of results

4.4.1 The influence of psychosocial factors on the regulation and use of mobile phones

The identified psychosocial factors which influence the use and regulation of mobile phones have been identified in the results section. The three main areas described as pattern codes were found to be, teaching and learning, availability and value sets. There were a total of 12 other codes identified as factors which influence the regulation and use of mobile phones in high schools, each one presented as a psychosocial factor which influenced use and regulation.

The same clusters of codes were found in the pilot study, and both case studies. The influence that these have on the regulation and use of mobile phones, the weighting that can be given to these findings and other possible explanations are explored within the discussion chapter.

4.4.2 Unique schools and their emphasis on different psychosocial factors

The results have separated the data which is unique to individual schools and data which can be found in both schools. The purpose of this was to identify how the different schools emphasised different psychosocial factors. Identifying 'how' is not through a causality theory where 'x' causes 'y', but through an exploration of the

psychosocial factors in each school to explore 'in what way' do schools emphasise different psychosocial factors.

The outcome has been that both replicated and unique contributions from each school were found, the implications in relation to unique cultures are explored in the discussion section. The strength of the evidence and assertions made are also discussed.

CHAPTER 5: DISCUSSION

The data and subsequent results on which the discussion chapter is based represent a historical snapshot of the respondents' thoughts at the time of the interviews and at the time of filling in the questionnaire. The discussion chapter is split in the following way:

- The balance of evidence
- Research Question 1
- Research Question 2
- Research Critique
- Significance of implications and future directions
- Concluding Comment

5.1 The balance of evidence

On balance of the evidence, I would suggest that the school context and its unique cultures have some, but limited, influence on the regulation and use of mobile phones. The greatest influence is that of wider society and in particular the relationship between parents, pupils and mobile phones which is not unique to individual schools but is influenced by psychosocial factors.

The relationship between people and mobile phones appears to be an evolving one which is influenced by psychosocial factors. Psychosocial factors do influence the use and regulation of mobile phones in high schools.

I started this study from the theoretical position that unique cultures in schools would influence the use and regulation of mobile phones in high schools and aimed to answer how the unique cultures would do this. The present study found that different schools emphasised different psychosocial factors which only appeared to be an influence on the teacher participants. Parents and pupils provided some individual contributions which were associated with their personal experience but not with the school culture. There are data which show that psychosocial factors and their influences on the participants are replicated in the two different schools which suggest that there is an influence outside of the school which could be attributed to the wider societal views about mobile technology.

The evidence suggests that in case study 2, the teachers relied on having a strong central policy on regulation and use of mobile phones so that their professional values and beliefs were not compromised by their personal ones.

The parent participants struggled to define any clear influences on their regulation of mobile phones and there was some reliance on trust and relationships between the pupils and the parent. This trust was also evident in the teacher participants, or mutual respect as one teacher called it:

I suppose as long as there is a mutual respect between myself and pupil I allow phones etc. as long as work is completed. This would reflect my values: learning is a partnership.

(Teacher 5 case study 2)

This 'mutual respect' emphasises the value sets of the users of mobile phones. The data also show that the desire to belong to a group and to form some identity is an influence with pupils. The desire for the pupils to belong also influences parents in taking a more lenient approach to regulation. Parents are also influenced by believing that they need to be available to the family. This sense of centring time and space around the mobile phone user increases use during school time and reduces regulation. This is reflected in a recent Samsung mobile phone advertising campaign which stated: 'Impatience is a virtue' (Samsung, 2010).

Where parents and pupils were largely similar in their views, the teacher participants contributed the differing opinions. In both case studies, the teacher participants held views that could be described as being polar opposites. This may be explained by the variety of factors such as age, gender, time spent as a teacher and so on.

The next sections explore the assertions made in more detail by answering each research question, weighing up the evidence and discussing explanations to the answers.

5.2 Research question 1

The question states:

How do psychosocial factors influence the regulation and use of mobile phones in high schools?

The answer to research question 1 is drawn from all areas of the data analysis as the effects that the psychosocial factors have on the participants is represented in all the tables and diagrams in chapter 4.

The present study identified twelve psychosocial factors which could be linked to one of three overarching factors as influences on the regulation and use of mobile phones. Each factor either evolved from the data or was developed from the review of the literature. The influence of some of the psychosocial factors varied between and within groups, other psychosocial factors had similar influences.

The nature of exploratory research has meant that the answer to research question 1 is a snapshot of the experiences and views of the participants involved. Bassey (1999) describes the outcomes of case studies as 'stories' or 'pictures'. The methodology has allowed me to make some generalisations, but they are described aptly by Bassey (1999) as fuzzy ones where the aim is not statistical generalisation, but exploratory. Due to the exploratory nature of the research possibilities, are discussed and implications are noted; however the assertions made in the following sections are evidenced to the study participants and any generalisations are tentative and loosely held. The following sections discuss the key themes which have emerged from the data.

5.2.1 The influence of value sets on regulation and use

The consideration that there is a 'mobile generation' has come from the literature review concerning the digital divide, and from the present study. The data suggest that mobile phones are an important tool for the pupil participants as a means of communication and that value sets influence their use and regulation of mobile phones through different means.

Green and Singleton (2007) noted that as a society we needed to develop a concept of 'mobile selves'. They concluded that mobile phones were important at a social and emotional level as they are linked to young people's sense of identity and belonging. The present research supports the view that mobile phones are important at a social and emotional level as a means to belong to a group. The present research identified the sense of belonging as part of a value set which is personal to the individual, and that the sense of belonging which the mobile phone creates increases both pupil and parent use and reduces regulation by parents of mobile phones in schools. The sense of belonging which pupils felt from having a mobile phone was also recognised by some on the teacher participants which influenced their regulation of mobile phones by greater acceptance of mobile phones in schools and lessons.

All three study groups recognised the importance that value sets played in determining the use and regulation of mobile phones in high schools. Value sets are defined in the methodology as being personal to individuals in the context of identity and belonging, self knowledge and individual responsibility.

The value sets were split up into: e-safety; peer interaction; financial; and well being. These are discussed in no hierarchy of importance in the following sections. A level of importance of each factor was not explored.

5.2.1.a e-safety and well-being

The teacher participants responded that the need to regulate use of mobile phones in high school was influenced by a perceived e-safety risk, which supports recent research in this field (Byron, 2008). In the most recent government commissioned report on risks and technology, Byron (2008) identifies mobile phones as a growth risk area for children.

The present study indicates that teachers are influenced by their previous experiences of technology and the risk it poses to themselves and the children they teach. Evidence suggests that this increases regulation and makes teachers in the present study who have experienced negative outcomes of technology more cautious about using them in the school.

Unpleasant texts and photos are avoided by banning use in general.
(Teacher 2, Case Study 2)

The present study was designed with e-safety in mind and as such the pupil participants were taken from the year 10 group in the school. In 2005 Barrow and

Heywood-Everett identified the year 10 group of pupils as the year group most likely to breach e-safety guidance. The present study found no evidence of breaches in e-safety in relation to the study participants.

As Barrow and Heywood-Everett (2005) study was five years ago, it is possible that pupils' use of mobile phones has developed and it might be that e-safety breaches happen at an earlier age. In 2002, Smith proposed that child safety be reframed to make sure that children were more risk aware and that safer behaviour should be encouraged. This view is reflected in the department for children, school and families' 2007 publication of 'Cyberbullying. A whole school-community issue' document. The setting up of CEOP in 2006 is also an indication of the personal nature of e-safety and as such it is possible that the current mobile phone generation have better awareness of e-safety.

Responses from parents and pupils highlighted that they believed mobile phones were a minimum risk to children. This finding was not consistent with previous research by Lima et al. (2005) who found that rapid technological development associated with less visible risks led to higher societal sensitivity to risk, however it is consistent with the most recent report from Ofcom (2009) which states:

Parents whose children had their own mobile phone were asked how concerned they were about: any content their child sees or reads on the mobile phone, the time their child spends using the phone, with whom their child is in contact, and the amount of money spent.

Among parents of 8-11s and 12-15s with their own mobile phone, few are 'very concerned' about any of the four aspects that we asked about. The level of concern does not vary by the child's age for three of the four measures.

Parents of 12-15s are, however, more likely than parents of 8-11s (23% vs.14%) to be concerned at an overall level about how much money their child spends on their mobile phone.

(Ofcom, 2009. p. 21)

This evidence raises questions over the weighting that the teacher participants in this study placed on e-safety as a reason for greater regulation of mobile phones. However the evidence which suggests that parents and pupils place less emphasis on e-safety is based on experience of risk. Due to the nature of the role, teachers are more likely to have seen or have heightened awareness of the impact of effects of breaches of e-safety such as cyberbullying. There is research which shows the greater impact that breaches of e-safety have in examples of cyberbullying or theft of images when compared to 'traditional' bullying (Smith et al. 2008). The consequences of acts, such as cyberbullying, using technology can sometimes be irreversible and hence, continue to affect the 'victim' even after the act of 'bullying' has stopped. It is possibly these experiences of the negative outcomes which influence teachers' decisions to regulate or use mobile phones in schools.

Responses from parents and pupils in relation to their low level of concern about e-safety in this study may be due to the following:

1. the perceived limitations of the technology;
2. the limitations of understanding the potential risks; or
3. the high level of understanding of risk and ability to counter risk.

The limitations of understanding potential risks were evident in the issues of children's wellbeing which in the present study was closely linked to e-safety. The

well-being factor identified a perceived dependency on mobile phones of which there was data identifying a heightened state of anxiety experienced in the pupil participants and in the parent participants when they were not with their mobile phone. The links with e-safety are with the development of a culture which displays obsessive behaviour as identified by BECTA (2006). However not all of the pupil or parent participants reported obsessive behaviours, but as rating behaviour as obsessive is a subjective judgement, levels of parental tolerance of mobile phone behaviour may vary to accommodate mobile phone behaviour.

It is possible that parents and pupils experience cognitive dissonance whereby the parent minimises their belief about risks or behaviours to provide a state of psychological comfort because the benefits to the family and the perceived safety the mobile phone provides is so great (further discussed in this chapter).

It is also possible that parents may be trying to balance a cost-benefit relationship between the cost to family relations if the parent tries to regulate mobile phones on the basis of e-safety and well-being, and the benefits that they see the child gaining such as the sense of safety and the social benefits of peer interaction.

5.2.1.b Influence of peer interaction

The pressure of peers tended to influence the type of gadgets the phone had and this was directly linked to a means of being able to join in with the group. Participation

was identified as an important part of belonging to the group which influenced what the pupils did with their mobile phone.

Green and Singleton (2007) recognised this notion of extending the sense of commonality through the use of mobile phones which was evident in all three study groups in this present research. The evidence suggests that owning a mobile phone is less about the economic needs and opportunities of cultural materialism and more about the psychosocial development of identity.

Well if other people are taking photos then I will, I don't, yeah then I will sometimes.

(Pupil case study 2)

However, it could be argued that opportunities of cultural materialism help form identity and hence the mobile phone can never be disassociated from economic realities. This is evident in the type of contracts pupils have and as such is linked closely to finance and economic opportunity being a means of regulating how mobile phones are used.

Although there was an understanding that pupil's peers had mobile phones, there was no evidence from the parent participants to suggest that the social pressure to be able to interact with each other influenced the initial cost of the mobile phone; however the ongoing financing of contracts or 'talk time' was seen to influence the use and regulation of mobile phones in a different way.

5.2.1.c Finance as a regulator

Henderson et al (2002) claimed that localities, individuals and finance were instrumental in technological change. Parents in the present study were found to be regulating the use of mobile phones through the financing and cost of the contracts. The limiting of what pupils were able to access on the mobile phone in terms of phone calls, texts and internet appeared to be an unconscious way of regulating. Parents agreed that this unconscious decision was one of the only ways to regulate pupil's use.

The evidence which indicates that regulation by parents was on the whole unconscious is note worthy as a potential risk because the focus went from what could be done by the phone or the individual to the cost of what they were doing. The implication being that as long as the use can be afforded then how the mobile phone is being used is regulated less by parents.

It is but its unlimited texts, so I mean there was a point where she was making calls and it was going over the amount that I paid each month so I just took the money back off her from her spending money. Her dad pays her spending money and I pay for her phone so I just take the money from her spending money..... I haven't given it (*regulation*) much thought at all and talk about it now, we regulate the computer more than we regulate her phone cos she's not allowed she has about an hour after she comes home from school and then she's off for a couple of hours and then she's has an hour before she goes to bed. So we do regulate the computer rather than the phones, I never thought about regulating the phone.

(Parent Case study 1)

A risk is that if mobile tariffs reduce, then parents will unconsciously allow pupils to have more and more applications such as free internet which in turn increases risks to breaches in e-safety (BECTA, 2006).

In 2005, Livingstone and Bober claimed that 33% of pupils with mobile phones had access to the internet via their mobile phone and that this number was likely to increase. Livingstone and Bober did not report on what percentage of pupils actually used the internet via their mobile phone. The present study suggests that although pupils have access to the internet via their mobile phone, it is currently limited by finance.

You can upload things via your phone but that doesn't really happen that often in school... I don't want to buy cos you have to pay £4.50 a week, it's really ridiculous.

(Pupil case study 1)

As the evidence from the present study has already suggested, finance plays a part in the regulation of use of mobile phones. There is supporting evidence to Henderson et al's (2002) claim and to that of Keeling, Macauley and McGoldrick's (2006) claim that initial outlay and more significantly the running costs of technology can lead to e-exclusion. It appears the running cost of the mobile phone influences how they are used, which from the evidence suggests it is largely between: the parent and the pupil; and pupil and their peers. The implication therefore is that socio-economic status of a community might influence the 'mobile culture' of that community and hence the local school community.

Finance, as a means of regulating how the mobile phone is used may also be contributing to parent and pupil perception of low risks associated with mobile phones.

As part of the general exploration that this study has completed, the results provide the basis of evidence for future research to investigate socio-economic factors and mobile phones.

5.2.1.d Summary of influences of value sets

This present study has found that the influence of value sets is an important factor on regulation and use of mobile phones in high school. The results of the research suggest a development of use of mobile phones which may be linked to a person's development of values and the relationships they foster in the environment they are in either at home or school and possibly in the 'virtual environment'. The notion of relationships between the person and environment are supported by Erikson's psychosocial theory of development for pupils cited in Gross (1992) of this age which states:

Although the order of stages is biologically based, the stages constitutes the ego's timetable and mirror the structure of the relevant social institutions; in this sense, individuals and society are interdependent.

(Gross, 1992 p. 625)

The evidence suggests that the parents, mainly through financial means and teachers, still limit and regulate the use of mobile phones for the pupil albeit to limited effect with a large amount of regulation being determined by the individual. Differences have been highlighted in perceived e-safety issues which influence teachers to further regulation but concerns are not high within the pupil and parent participants. Pupils are left to make choices about their individual use of the mobile phone based on external rules and internal values.

As a result of this present study it is proposed that, the personal use and regulation of mobile phones is dependant on people's value sets. Value sets are contextualised in identity and belonging and are developmental in nature. Value sets require self knowledge and individual responsibility which are based on experience of technology, social interaction, financial factors and perceptions of e-safety.

5.2.2 The influence of availability on regulation and use

The results of the present study suggest that availability is an influence on regulation and use. Availability was seen as relating to blurring of boundaries; parenting; organisation; digital divide and safety. This section aims to discuss how availability influences use and regulation in high schools.

5.2.2.a Blurring of boundaries

The results show that the mobile phone has contributed to the blurring of conceptual and physical boundaries in both case studies. Pupils are able to contact or be contacted '24/7'.

I haven't done anything yet actually...no cos she has not used hers as much, we used to hear her at night when she was in bed and she had it on the floor when a text comes it vibrates on the floor and we don't hear it as much, whether she's taken vibrate off or she's not used it as much cos I tell her to switch it off at night so she erm, she must be doing that.

(Parent Case study 1)

There is something in that (*fashion*) and I think maybe, some pressure to keep that link with friends and that, it all seems to go over the phone or over the internet. Even over the games machine now, they are online some of the time, not all the time, but there is even that which is a bigger circle, there seems this constant, erm kind of need to keep this contact you know what I mean.

(Parent Case study 2)

The results suggest that a key psychosocial factor in the regulation and use of mobile phones in high schools is the ability for individuals to be on a network so that they are more available to others. This presents itself by pupils and some parents contacting others at any time of the day regardless of where they are or what time it is. The results support previous studies which have recognised that mobile phones can allow the user to command things to happen around them (Green and Singleton, 2007; Henderson et al, 2002) and the present study has found that this is also true when the pupils are in the high school environment. This psychosocial factor allows the

pupil to have more freedom in the digital era and creates a new relationship between the pupil, the mobile phone, the parent, the teachers and the school environment.

The exact nature and the extent of the relationship between home and pupil have not been explored in this present research. However the indications are that the communication between 'home' and the pupil whilst the pupil is at school takes place via the mobile phone.

The influence which the mobile phone has had is that the traditional boundaries of time and space which school used to offer are blurred. This present research proposes that boundaries between home and school are significantly weaker than they were before mobile phones. There is evidence to suggest that the boundary is still respected by some parents but there is also evidence which suggests that the ease and convenience that mobile phones afford challenges even the parents who do respect the boundary.

Teachers' views were split between understanding the need of pupils to be available and others who can see no need as the school is able to provide contact between pupil and parent via other means such as the school office and land lines.

5.2.2.b Parenting and organisation

Research by Williams and Williams (2005) suggests that the 'trade off' which pupils make for freedom is that of being available to their parents. The present study

supports previous studies which identify availability as an influence, but rather than availability being a trade off for freedom, the present study found that being available was much more of an agreed understanding, where the pupil and the parent agreed to be available for each other. Being able to organise human and physical resources has been found in this present study as a key influence to using the mobile phone for parents and pupils.

Other studies have identified influences on interaction between parents and pupils which the mobile phone creates. Previous findings are supported by the present results and are reflected in the following:

to help extend the idea of “home”; being communicatively available; and maintaining physical predictability and stability of home base.

(Palen and Hughes, 2007 p. 345)

Moreover, the sense that a keitai [*mobile phone*] is a “necessity” for the child—for them to be picked up by their parents, for communication at school or after-school club activities, or when they act independently from their parents—has emerged from the “keitai-embedded everyday life” of today’s Japanese society. So the parameters of the “tug-of-war” over keitai ownership are in continual flux as the “keitai-embedded everyday life” evolves.

(Matsuda, 2007 p. 187)

There was no evidence in the present study to suggest that mobile phones were used by parents as a surveillance tool (Williams and Williams, 2005; Pain et al., 2005) or that the mobile phones had taken on the existing risk taking behaviours of adolescence (Pain et al, 2005).

It is acknowledged that studies which have associations with technology are at risk of being 'out of date' before they are written up. The fast pace of change within the technology sector means that relationships with technology and the way it is used may alter the interrelationships between the psychological, the social and the technology. The issue of fast changes has been experienced during the course of the present study as whilst writing the discussion and reviewing the thesis, the development of Mobile Location Services for consumers has started to increase (Ofcom, 2009).

Mobile Location Services generally consist of those that either allow the mobile phone user to locate himself or herself (e.g. for navigation or finding "Where's my nearest chemist/cash machine/cinema etc.?" - often referred to as 'active' services - or services whereby a mobile phone user, once s/he has enabled and consented to the service, can be located by another, when that other person initiates a location request - often referred to as 'passive' services. A number of data sources are used to deliver mobile location services, such as the Global Positioning Systems (GPS) satellite, open cell ID, wi-fi location and/or cell location data supplied by the mobile networks - the last of these are the subject of a code of practice developed by nine leading location service providers ("LSP") in the UK and the five mobile network operators and agreed between the police, the Home Office and child protection agencies in 2004. Under the terms of the Code, in addition to consent being required initially for the phone (more accurately, the SIM card) to be tracked, random SMS reminders must be sent to the phone.

(Ofcom, 2009 p. 23)

This is likely to alter the relationship between the psychological and social uses and regulation of mobile phones. Early indications are that there is a gender bias with parents of girls being more concerned about the overall impact of Mobile Location Services (Ofcom, 2009). The regulation of Mobile Location Services appears to have safeguards to protect children and requires an understanding between the mobile phone owner and the person trying to locate the mobile phone (Ofcom, 2009).

5.2.2.c Digital divide

Studies conducted in 2005 appear to focus on the parent and the pupil as two separate entities. Studies in 2007 appear to have linked the parent and the pupil more closely as one family unit. The results of the present study support the position that mobile phone interactions between parents and pupils are closer than in previous years. I propose that this is because of the narrowing of what is called the 'digital divide'.

Digital divide relates to differences between groups in their understanding and use of technology. The present study identified that the pupils in high schools today have all grown up with mobile phones. The data highlight that pupils have always known the concept of being available and that this influences their use of mobile phones. These pupils are termed 'digital natives' (Prensky, 2001). Traditionally adults who have not grown up with digital technology have been termed 'digital immigrants' (Prensky, 2001). The results suggest that there is no longer such a distinction which can be drawn between pupils and parents. That is, the current generation of parents with school aged children have developed their parenting skills within the digital era. Their interaction with pupils is influenced by this psychosocial factor in that they have always been able to contact their child at school by the mobile phone. The data suggests that the reciprocal availability has had an impact on the whole school community and on parenting style.

5.2.2.d Safety

The distinction between e-safety (mentioned previously) and safety is that e-safety relates to safety in the electronic environment and safety relates to the physical environment.

The use of mobile phones is regarded by parents and pupils as keeping the pupils safer and this encourages use of them, but teachers are concerned that mobile phones can make the pupil more vulnerable to risks in the physical environment which increases the regulation of mobile phones by some teachers.

There may be some cross over of concepts between e-safety and safety for example 'contact' which has meant that reporting on physical safety has been less.

5.2.2.e Summary of the influence of availability

The psychosocial factors involved in availability have led pupils and parents to see each other as being constantly available, regardless of time and space boundaries.

Pupils have grown up with mobile phones and the present study found that the parents who participated have only ever known parenting in the digital era. The views of teachers are divided as to how they respond to this phenomenon.

The convenience and perceived benefit of safety influences parents to encourage the pupils to take mobile phones into school, and the same factors also influence pupils to take mobile phones into high school. Teachers are divided in their views on whether mobile phones encourage safety or vulnerability and this influences their regulation of them. Some teachers regulate more as they believe mobile phones make pupils more vulnerable and others regulate less as they recognise the needs of the parents and pupils.

5.2.3 The influence of teaching and learning on regulation and use

Teaching and learning was the most diversely contributed to psychosocial factor. Naturally the teachers had a lot to contribute to this aspect. The diversity of the responses will be discussed when answering research question 2 because the differences can be related to unique cultures in schools.

As has already been discussed, the influence of availability and value sets play a significant role in the regulation and use of mobile phones and the present study suggested that these psychosocial factors were affected by the teaching and learning context for the pupils, parents and teachers.

The present study found that contributions to the teaching and learning context could be categorised as; compatibility, relative advantage or pedagogy.

5.2.3.a Compatibility and relative advantage

Owston (2008) found that compatibility, relative advantage and observability were three key factors when implementing ICT innovation in schools. The present research supports two of the factors: compatibility and relative advantage, as key influences on the regulation and use of mobile phones in high schools.

Views were divided between those who could see a relative advantage and those who couldn't. Those who could, cite that they used mobile phones as part of their teaching practice. Those who couldn't tend to regulate the use of mobile phones more. No pattern of difference in relation to demographics of the teacher participants was identified but this is possibly an area for future research.

The teachers who believed that mobile phones were compatible with school tended to try to use them as part of their lessons. If they were unable to use them in their lessons then they were able to envisage how mobile phones might be compatible. Those who couldn't see compatibility tended to regulate more.

Some teachers could see how mobile phones were compatible with the school but not with lessons. Those teachers tended to be stricter about mobile phones in class than during break times.

The pupils and parents saw few benefits to having mobile phones as part of teaching and learning and as such the use of them were limited to personal use rather than essential use in the curriculum. Pupils' experience and subsequent views on the

benefits of mobile phones were linked to the teachers' use of them. Teachers were caught between being unable to make the use of mobile phones compulsory and finding optional uses of the mobile phone. This was evident in the pupils' comments where they did not attribute experiences of using mobile phones in high school to the relative advantages of mobile phones in the curriculum.

I videoed something the other day in school, we made a massive paper chain in chemistry, it was erm, meant to be a polymer or something so made a massive paper chain which was like the length of the quad.

<CB Q and will you use that for school stuff or will that be your own?>

Just cos it was fun. (laugh)

(Pupil, Case Study 1)

5.2.3.b Pedagogy

One of the most difficult factors to code and conceptualise was that of pedagogy. Individuals did not use the term pedagogy but their references to the principles or practice of teaching was identified but not as clearly as other codes used. The influence of pedagogy was found in case study 2 as a unique contribution and is explored further in the next section.

Jefferies et al. (2007) summarised the complex relationships played between pedagogy, ethics and technology. The difficulty in coding pedagogy in this research may have been symptomatic of a much wider philosophical issue with regards to positivism and constructivism which was identified within the literature review.

On balance of the evidence from the data and the literature review it is my assertion that although the present research has some evidence of contributions to pedagogy as a factor which influences the regulation and use of mobile phones, the difficulty in coding pedagogy has meant that any assertions made would need more secure evidence. Future studies may need to focus specifically on pedagogy in the data gathering phase to be able to contribute to this area.

5.2.3.c Summary of influences of teaching and learning

The present study found that relative advantage and compatibility and had influences in the teaching and learning context however there was not enough evidence to make this assertion in relation to pedagogy. The present study supports the view expressed by Owston (2007) who found that teachers who saw less relative advantage and compatibility with technology based innovations were less likely to sustain the use of it in school.

In addition to the sustainability of innovations there are also implications for the development of innovations. Owston (2007) found that teachers were more likely to develop innovations if they could see pupil learning benefiting from the innovation. The present study found no benefits to pupil learning as identified by any of the pupil or parent participants and very few of the teachers related mobile phones to learning. The implication is that the development of mobile phone initiatives is likely to have little teacher support if the teachers follow the patterns identified by Owston (2007).

Future research may be needed to identify possible differences in teacher attitude towards mobile phone innovations if such innovations are required.

It is possible that the strength of this psychosocial factor is that every person had one or more views on it, even if those views were largely unique to the individual. It may mean that this is an area which requires targeted research which has the opportunities to identify specific substantive and methodological aims.

5.2.4 Research question 1 - summary

In trying to answer this question I came across theoretical issues with regards to the psychosocial factors. Although there were psychological and social influences identified within the literature reviewed, there was no compelling evidence that these transferred into the high school environment. The research question required an educated 'leap of faith' to ask 'how do psychosocial factors influence...' rather than 'do psychosocial factors...' or 'which psychosocial factors...'.

The psychosocial factors can be accounted for as they are from the participants involved. They also reflect much of what was identified within the literature review and some have been repeatedly cited within and across the two high schools. In addition, the present study has found that certain psychosocial factors cluster together and these have been identified as pattern codes (value sets, availability and teaching and learning). These pattern codes give some structure and account for

how psychosocial factors have influenced the use and regulation in the present study and provide a base which has generated new questions.

The present study has been able to directly link how psychosocial factors influence regulation and use in the different study participants by identifying the psychosocial factors. In summary, three key factors identified (availability, value sets and teaching and learning) and discussed in the present study either increase or decrease the amount of regulation and use in the different study groups. In answering research question 1, the way in which the factors influence regulation and use of mobile phones has been identified.

The evidence suggests that the views and experiences of the pupil participants are similar. Similar experiences are also reflected in the parent participants. There appears to be a larger variety of views and experiences amongst the teacher participants. This finding may be due to methodological issues faced with regards to the sample size and these findings and possible limitations will be explored further when answering research question 2 and in the critique of the present research. The present research has given clear indication how the identified factors do influence regulation and use and further study will be required if causality is wanted to be found.

5.3 Research question 2

The question was:

How do unique cultures in the schools emphasise different psychosocial factors which influence pupils, teachers and parents in their regulation and use of mobile phones?

Research question two was developed to identify in what way individual schools emphasised psychosocial factors through their interaction with mobile phones, pupils and parents. The data were gathered through the experiences of pupils, parents and teachers.

The purpose was to explore the possibility that psychosocial factors which influenced regulation and use, varied between schools, and that this variation was evident in the experiences of the participants.

The present study found that any emphasis on different psychosocial factors unique to an individual school had very little influence on the regulation and use of mobile phones in the pupil and the parent participants. Unique cultures in schools influenced teacher behaviour by creating greater consistency within the teacher participants.

The data were sorted out into replicated and unique contributions by use of the effects matrices for each case study. The responses from the study participants were

kept separate as well as the data from the case studies which allows for scrutiny and faithful representation of the data (Miles and Huberman, 1994).

The intention of the data collection and the data analysis has been focused on psychosocial factors and the variance of these between schools. The identified unique contributions made by participants in each school represents participants experiences of the unique culture of the school's influence on psychosocial factors. The next steps would be to test these assertions further. More case studies would be needed to test for theoretical replication to see if contrasting results could be found for predictable reasons (Yin, 2009).

5.3.1 Unique contributions related to value sets

When the data from the 2 case studies are examined, unique contributions can be found in:

1. Peer interaction; and
2. Well-being.

Case study 1, which is an all girl's school, identified two areas of peer interaction which influenced regulation and use in school. It was recognised by the teacher participants that the way pupils interact with their peers can sometimes cause disputes and by the parent participants that there was a social expectation that everyone in school had a phone.

The influence of gender on the way in which the mobile phone is used has been evidenced (Henderson, 2002; Green and Singleton, 2007). Tufekci (2008) found that girls were more likely to use social networking sites to improve social status. It is possible that the use of social networking sites is reflected in the use of mobile phones.

Green and Singleton (2007) argue that mobile phones are used as a gendered artefact which influences how a person uses the mobile phone. The data from the present research suggests that the way in which teacher participants in case study 1, which is an all girl's school, perceived the mobile phone to be used was unique to that school; however the evidence showed that the pupil participants from both schools used their mobile phone in similar ways. As no indication was given from the pupil participants in either case study as to the frequency of use, it might be that the unique culture of case study 1 influences the frequency and prevalence of use, rather than how the mobile phone is used. It should be considered that the unique culture of case study 1, as Green and Singleton (2007) argue, be as a result of gender.

Pupils, parents and teachers showed sensitivity to well-being of pupils in case study 1. Trust in individuals to act responsibly with regards to their own well being was also identified. It is possible that this interaction between the pupil and parent participants may be accounted for by the relationships held between parent and daughter as in case study 1, these were all the participants. Although there is no specific research evidence to support this assertion, it has been suggested when answering research

question 1, that the synchrony between parent and child is developing. It might be that the developing relationship between a parent and daughter in relation to mobile phones is different to other parent child combinations.

In case study 2 there appeared to be a greater sensitivity and understanding from the teachers to the role that mobile phones played in youth culture and the impact mobile phones can have on well-being. This supports the view of Green and Singleton (2007) that mobile phones are socially and emotionally important to pupils.

Mobile phones are part of their clothes. It would be inconceivable to leave a house without one bit like underwear!

(Teacher 5 Case study 2)

This evidence suggests that teachers in case study 2 were more cognisant of the value that pupils place on mobile phones. The reason for this awareness was not investigated and it may be due to a variety of factors.

Sensitivity to pupil's needs in relation to mobile phones are likely to depend on one of 2 influences:

1. Teacher demographics; and
2. School systems.

Although the above two points are broad, the following paragraphs will explore possible influences. The present study did not collate information about the teachers who responded. The demographics of teachers in a school may influence their collective views of mobile phones. Teachers who have high school aged children

may have very different views to teachers whose children have left school or those who do not have children. Similarly the age of the teacher may have a bearing on their views. It is also possible that there may be a critical mass of teachers which alters the 'staffroom perception' of mobile phones. Further research could be completed to identify specific influences on individuals.

Individual influences are also likely to be closely linked to school systems. Not only does this include the teachers, it involves other factors such as the senior leadership team and policies. Links in other technology innovations and their success in the school may be indicators of a schools ability to adapt to technology. Case study 2 is a technology college and as such may be more adept at taking on innovations in technology.

The understanding found in case study 2 influenced the teachers regulation and use of mobile phones in that those who identified this appeared to be more tolerant of pupils and mobile phones in high school.

5.3.1.a Summary – unique contributions related to value sets

The unique contributions from case study 1 and case study 2 show differences between schools in perceptions of the purpose of the way in which the mobile phones were used and sensitivities to different participants.

Whilst there were some unique contributions in schools which could be attributed to school culture differences in relation to value sets this appeared to have influenced the teacher and parent participants. The data from the pupil participants showed no differences in their regulation and use of mobile phones in relation to value sets. So although it could be argued that there are differences in relation to value sets between schools, the differences are not represented in each of the study groups.

An unexpected outcome of the data was in relation to e-safety. The results of this present study do not support all of Barrow and Heywood-Everett's (2005) risks associated with technology and mobile phones in schools which states that school's experience of e-safety breaches would vary depending a number of factors such as their AUP (acceptable user policy) and training of staff. The present study concluded that experiences of and approaches to e-safety were not unique to individual schools as suggested by Barrow and Heywood-Everett (2005). Experiences of e-safety were more universal than expected. The difference in results might be a reflection of the 2008 staying safe action plan (Department for Children Schools and Families, 2008b) which saw e-safety in relation to mobile phones made more explicit in schools and it may also reflect the work that BECTA have been doing in schools since 2005.

5.3.2 Unique contributions related to availability

The unique contributions in relation to availability in the present study were found to be:

1. Blurring boundaries;
2. Parenting; and
3. Organisation.

Teachers in case study 1 commented on how the pupils communicated between classrooms, between schools and with their parents. This was associated with gossiping and being unable to put things off. This was deemed by the teachers to influence their regulation and use of mobile phones in school. The observations of teachers were found to be in relation to how pupils blurred boundaries and generated a sense of availability.

Pupils seem to text each other constantly (form of gossip - used to be passing notes in class - now can be done between classrooms!)
(Teacher 12 case study 1)

This concept of being unable to put things off and the influence that this had on pupil's perception of how available they and others are, could be attributed to the school and may be influenced by how the mobile phone is used and related to value sets. The present study has no evidence which finds that experiences associated with availability are unique in the pupil participants to case study 1 as the same pupil experiences were also found in case study 2. It is possible that the differences of boundaries being blurred is either due to teacher sensitivity to it, or as mentioned in relation to value sets, it may be the frequency and prevalence of the mobile phone being used in this way.

Pupils from both high schools recognised that they used mobile phones to contact others with disregard for time and space boundaries. The evidence from the pupil participants in both schools supports the view that users of mobile phones can enter different domains when they are physically placed in what may be a constricted physical space (Selwyn, 2003; Green and Singleton, 2007; Henderson et al, 2002). In the case of this present study this is in relation to pupils using mobile phones whilst in high school. This included contacting friends and parents.

Where previous research has been limited to identifying the relationships between parents, pupils and mobile phones, the present study has extended this relationship to the context of the high school environment. The data suggests that the influence of being available as identified in the pupil and parent participants is not unique to school culture and being available was cited as good reason for going against the rules of the school if necessary. The need of the parent and pupil to be able to extend the reach of the home (parenting) and the need to organise resources appeared to outweigh regards for rules and policies.

I don't know whether I'm influenced by the school, I suppose if I was maybe I would say she couldn't take the phone to school at all but I just think I'm a better judge of that and I do think that she does need it cos she's 3 miles from home she gets the bus so if the bus doesn't turn up... I'd rather she had her phone and disobeyed school than be start walking home because she couldn't ring me.

(Parent Case study 2)

In contrast to case study 1, some teachers from case study 2 cited positive reasons for pupils to have mobile phones in schools although these views were not

universally held in the teacher participants in case study 2. The views which recognised needs of parenting and organisation, reflected the needs expressed by the parents and pupils in both case studies. The teachers identified an understanding for pupils to have mobile phones as a means of organising and contacting home. Henderson et al. (2002) found that factors such as gender, locality and social class all influenced the 'mobile culture' and further research could be completed to explore the possibility that the factors identified by Henderson (2002) influence the mobile phone relationship between parent and pupil.

5.3.2.a Summary – unique contributions related to availability

The data from this present study identifies a divide between the teachers, parents and pupils in relation to the influence of availability.

The data shows that the teacher participants in the different schools hold different views on the influence of availability. In case study 1 the teacher participants found that the influence of availability had the effect of forming a negative opinion of mobile phones in school and as a consequence led to less tolerance of them. In case study 2 the teacher participants identified the benefits of pupils being available such as being able to contact parents after school, as a positive outcome of having mobile phones in school. The uniqueness appears to be how the mobile phones are perceived within the teacher participants.

Whilst there were unique contributions with regards to availability, these have been limited to the teacher participants. Although the pupil participants contributed unique contributions in relation to digital divide, previous research has identified these views as being universally held (Prensky, 2001) so it is unlikely that the comments from the pupils are as a consequence of school culture.

Pupils and parents from both schools did not attribute any aspects of availability to individual schools. The universal experiences of pupil and parent participants support previous research in this field (Williams and Williams, 2005; Pain et al, 2005; Matsuda, 2007; Palen and Hughes 2007) which indicates that the unique school cultures in the present study did not have an influence over the regulation and use of mobile phones in the pupil and parent participants in relation to availability.

The discussion raises questions as to whether a school could have an influence on parent and pupils concepts of availability and if so what the benefits would be to the school community as a whole.

5.3.3 Unique contributions related to teaching and learning

The data suggests that views in relation to mobile phones and the three factors associated with teaching and learning (relative advantage, compatibility and pedagogy) were different between the 2 schools in the present study. Case study 2 was identified as having a broader base of opinions within the teacher participants.

This broad base may reflect the culture of the school in relation to mobile phones and it is possible that it could be related to Butt and Cebulla's (2006) concept of school e-maturity.

The concept of a schools' e-maturity states that e-maturity:

'...indicates the extent to which schools and their teachers make the use of ICT integral to their teaching and planning of teaching activities and provide students access to ICT inside and outside the classroom.'
(Butt and Cebulla 2006)

The evidence from the present study supports Butt and Cebulla's (2006) findings and as case study 2 is a specialist technology college it could be hypothesised that 'specialist technology college' status of schools influences the development of e-maturity.

The teacher participants in case study 2 held the most diverse views so it is significant that there was common agreement amongst the teacher participants in relation to pedagogy. The teachers followed policy guidance regardless of their personal or professional views, feelings and experiences of mobile phones in high schools. The influence of the school policy on teachers' regulation and use of mobile phones was also recognised by the pupil participants in case study 2. This suggests that the policy on mobile phones is an important document in that school as it may allow a variety of views to be held.

I hope that my personal views don't influence me too much. I follow school regulation.

(Teacher 2 Case study 2)

Interestingly, the individual views in case study 2 were not all 'pro' mobile phones. The unique contribution from case study 2 teacher participants showed what could be construed as a deeper understanding or possibly greater experience of mobile phones in high school. An example of this included a belief that although no relative advantage was currently evident, the teacher believed that there should be more advantages to having mobile phones in school.

This phenomenon of greater acceptance, use or understanding is not unique to mobile phones in high school. The views and motivation to implement ICT initiatives has also be found to be similar to implementing other initiatives such as, behaviour management, understanding and tolerance of special educational need, programs for gifted and talented pupils, and so on (James and Jones, 2008). The present study provides some evidence to support the assertion that the motivation and drive of key stakeholders in the school has significance (Owston, 2007; James and Jones, 2008) and that this drive is experienced by the pupils and teachers but there is no evidence to suggest that in the present study, the parent participants were influenced by the 'drive' within the school.

The pupil participants in case study 1 reported that the focus of what was expected of them in school, such as a focus on learning, influenced their regulation and use of mobile phones. It is possible to assert that where the culture of the school is primarily focused on achievement, the regulation and use of mobile phones is effected. The

data from this present study does not enable to me to state how it is affected with any degree of confidence but it is further evidence to suggest that the culture and priorities within a school might emphasise psychosocial factors which influence the use and regulation of mobile phones. However, other factors need also to be explored as possible influences such as, demographics of the teacher group, size of school, demographics of pupil groups and e-maturity.

5.3.3.a Summary - unique contributions related to teaching and learning

On balance of the evidence it appears that teaching and learning context splits the teachers' views. An interesting element not explored in this research is that of general ICT development in a school and its relationship with mobile phone technology. Younie (2006) identified: leadership; funds; ICT provision; ICT training; and pedagogy as problematic areas for implementing ICT in schools.

Unique cultures of the schools do not appear to have a significant impact on the pupils or parent, but there is evidence that unique cultures may emphasise the need to follow school policy and guidance so that all staff members, regardless of personal or professional views and experiences, can respond appropriately to situations. It was found that teachers' views were varied in both schools in relation to compatibility and relative advantage.

5.3.4 Research question 2 - summary

The present study has used 2 case studies to identify how the unique cultures emphasise different psychosocial factors which in turn influence regulation and use in those schools.

The data identified that the pupil and parent participants' use and regulation of mobile phones were not greatly influenced by unique cultures in schools.

The data also identified that there were differences between the schools within the teacher participants indicating the influence of unique cultures. The differences could be attributed to teacher views but were not supported by pupil or parent views, indicating that uniqueness was mostly found within the teacher participants.

The present study did not set out to identify why differences occurred but as part of the discussion of possibilities, aspects of the school have been considered. Such aspects include: gender, status of the school (technology college), demographics of the teachers in a school, demographics of the pupil groups, e-maturity of the school and the commitment of key members of staff.

The present research found evidence to suggest that the unique culture of a school may be seen then as not influencing pupil and parent regulation and use of mobile phones, but having an influence on the teacher's regulation and use.

5.4 Research critique

The multiple embedded case study set out to explore the subject area so that future research questions could be generated. The following observations have been made.

5.4.1 Conclusions and evaluation of research design

On the balance of the issues faced during the designing of the research and the overall purpose of the research, I conclude that the research methodology has been fit for purpose. The current research aimed to understand a real life phenomenon in depth, and keep the contextual conditions intact. The exploratory nature and the use of schools required a different approach to be taken from previous research into technology which has focussed on statistical generalisation or which has not taken the school context into account.

Previous research in to technology has not brought together key stakeholders in establishments as the present study has and as such previous studies have been able to rely on large scale surveys and follow up focus groups (Livingstone and Bober, 2005; Barrow and Heywood-Everett, 2005). Other studies have relied on qualitative data and experiences of technology but have either limited their investigations to one group such as pupils, or have examined relationships between two groups such as parents and pupils (Williams and Williams, 2005; Green and

Singleton, 2007; Smith et al, 2008) These are all good studies in their own right, but their methodologies did not fit this present study research aims.

I would suggest that this study has identified psychosocial factors and their influences on the use and regulation of mobile phones. The use of both social and psychological factors was critical in delving deeper into the data as it was believed that individuals and society are interdependent.

The analysis of the data was purposeful and fitting to the nature of the exploratory research. The data were analysed and re-combined many times over a period of three months. Careful consideration was given to data analysis (Miles and Huberman, 1994) whilst maintaining a logical chain of evidence (Yin, 2009). Each cycle of data analysis made the data clearer and produced new questions and avenues which were explored, resulting in refined data which has been presented in chapter 4 and discussed in chapter 5. It became apparent when to stop the cycle of data analysis as the same questions and avenues were being generated. A level of saturation became apparent (Miles and Huberman, 1994).

Despite the suitability of the methodological approach, the data gathering and analysis, the present study has limitations. Although the research design was such that the investigation was exploratory and based on replication within and between participants, it is acknowledged that the number of participants and the 'year 10' only focus may have limited the scope of the responses given. It is also recognised that the findings are loosely held as the results are from only 2 case studies. Further

research would be needed to strengthen the findings of the present research. Future research could be a replication of the present study with a focus on theoretical replication where contrasting results could be predicted for anticipated reasons (Yin, 2009).

I am not proposing that this is the only methodological approach possible for this type of research. I am suggesting that, despite the limitations identified within the discussion, the research was able to answer the research questions and met the substantive, theoretical and methodological aims.

Table 5.1 Substantive, theoretical and methodological aims of the study.

Substantive aims: to determine factors affecting the effectiveness of some aspect of practice (use and regulation of mobile phones) (in high school) a specific context.
Theoretical aims: to employ a specific set of concepts (psychosocial factors) as a framework for investigating the effectiveness of this aspect (use and regulation of mobile phones) of practice in this context (high school).
Methodological aims: to employ a particular methodology and research design (exploratory case study) and methods of data collection (questionnaire and semi-structured interview) and analysis (qualitative) to address the central question by investigating the aspect of a practice in this context.

The results and subsequent discussion have been subject to scrutiny in relation to reliability and validity. This has involved using multiple sources of evidence, being clear about where conclusions have been drawn from and relating the findings to the case studies involved. The study has been written and presented so that an observer can trace steps in either direction from conclusion to initial research question and

from question to conclusion. On balance of reliability and validity I find that the evidence is a fair representation of the pilot study and the 2 case studies at the point at which it was conducted.

The strength of the exploratory case study in this research has been in the cross case data analysis which has identified many similarities between the two cases and one or two unique contributions which have emerged through the data analysis. The extent of the similarities and unique contributions was not visible in the field work. The questions asked in each case study were the same, however they were open enough to elicit different answers and these differences in answers are apparent in the cross case analysis, but to a much smaller extent than expected.

5.4.2 Reflections Upon 'School Culture'

Research question 2 used the term 'school culture' yet the research did not explore this phenomenon as a specific entity. Morgan (1996) notes how culture is influenced by the ideologies, values, beliefs, language, norms, ceremonies and other social practices.

I recognise that that the question sets the reader up to expect exploration of school culture which was not the intention of the research as the potential difficulties in uncovering the social practices and ceremonies in each school risked being a distraction from the specific focus of psychosocial factors which influenced the

regulation and use of mobile phones. The use of the term culture without the exploration of it has possibly weakened the research question. I have reflected on the use of this term in the research question and if I were re-writing the question it would read:

How do different schools emphasise different psychosocial factors which influence pupils, teachers and parents in their regulation and use of mobile phones?

Consideration was given to changing the research question before submission to the University for examination, however I believe that this action would have altered the transparency of the research which is integral to case study research and as such have chosen to reflect further upon the use of the term and how it may have been used or could be used in future studies.

The culture prevails in most forms of organisations and is set in the history of the organisation and is often the accepted way of doing things (Schein 1985; Morgan 1996). The present research has touched on contributions to culture such as the way people think and feel in relation to the way of doing things which can be seen in the questions asked in the teacher questionnaire and in the semi-structured interviews (Appendix 4 & 9). The focus of the questions and the present research was not broad enough to focus on exploration of the school culture. To do this, further layers of investigation would be necessary. Data which could give insight into school culture in relation to mobile phones could be current or historical in nature

and in my opinion may incorporate three elements which could be gained in a variety of ways depending on the nature of the research methodology:

- Views;
- Practice; and
- Ideologies

The present research obtained views and future research may incorporate ideologies and practice.

Ideologies - Depending on the school, ideologies would incorporate the views of the head teacher, the senior management team, the governing body, other adults who work in school, parents and pupils. These ideologies may be found through focus groups or through analysis of curriculum policies to investigate how mobile phones are weaved in to the school curriculum which would add to uncovering more about the school culture.

Practice - There are many ways that practice could be investigated for example the use of self-report diaries for different participant groups would give valuable insight in to the norms of the school, possibly coupled with participant observations of how mobile phones are used in the school. The focus could vary between the use and regulation of mobile phones to a wider use of technical language and integration of ICT in the school.

There are many possibilities and as with any research, boundaries need to be drawn mainly due to resource constraints. There were two main resource constraints within the present research. These were: limited previous research in the chosen area; and time constraints of the researcher.

Very little research had been completed within the area of the present study which limited the scope of the research as there was only a small evidence base to build on. Other possible research areas were considered which included focusing on one school, or focusing on one possible psychosocial influence however the gap in the research highlighted by the literature review, was that no research had brought all the different elements together. The present research set out to explore this contemporary phenomenon. The decision was made to choose a tightly focused study rather than a broader, possibly more holistic approach.

Other elements to be considered for future research might include separate focus groups with: pupils from years 7, 8, 9, 10 & 11. It is my belief that separating out the year groups, including the views of all adults in school and parents via focus groups would yield further layers of data leading to a more holistic study.

The present study has recognised the difficulties in conceptualising boundaries, such as parent or teacher and also school. As a regular visitor to schools I feel part of the school and as such will inevitably have some influence on the school. Consideration should also be given to the role and impact of the wider school community when considering a 'holistic' study: however, in my opinion there is a methodological risk

when trying to identify firm boundaries, as the mobile phone allows a blurring of boundaries. It could be argued that the online social community has become part of the school community. The example would be that pupils from different school can communicate and interact with each other within what might have been the traditional 'school boundary' of physical location and time constraints of (approximately) 9.00 am to 3.30 pm.

5.5 Significance of implications and future directions

The key significance of the findings for the 3 participant groups and for educational psychologists is presented below and further research directions are suggested.

5.5.1 Pupils

Influences of values sets and availability are most prominent for the pupils. The implications of the findings are that individuals need to take responsibility for their own regulation and use of mobile phones. The individual nature of the mobile technology places the user at the centre of decision making. Risks associated with technology and breaches of e-safety are a natural feature of owning a mobile phone although the present study found evidence to suggest that the ages of breaches in e-safety may have changed. Further research in the area of pupil interaction with the technology should be completed. An interesting comparison would be to replicate

Barrow and Heywood Everett's (2005) research and aim to account for similarities and differences.

5.5.2 Parents

The present study concludes that parents are influential in pupil's use of mobile phones by how the parent interacts with the pupil via a mobile phone. The notion of being available can be found in the relationship between parent and pupil and this, amongst other factors, influences parental regulation of mobile phones. Further research could explore the relationship between parents, pupils and mobile phones with a focus on availability. It would be of relevance to find out if the notion of pupils and parents being available to each other throughout the day is a reflection of adults who parent a digital generation and whether the boundaries of school and home can be identified within the 2 groups.

5.5.3 Teachers

The teachers in the present study provided a broad array of views. Further research could be conducted in associating factors such as age, role in school, number of year of teaching experience and so on, with teacher's views about mobile phones. The purpose would be to identify possible trends which could be targeted to support individuals in schools, however as noted in the discussion, the variety of views are

likely to be found when implementing any pedagogic change. The focus of future research may then only be of relevance to schools which aim to develop mobile phones and mobile technology within their school.

5.5.4 Implications for Educational Psychology Practice

My practice as an Educational Psychologist has been influenced as a direct result of the present research. The influences have been on my understanding of technology and its influences in school, and also on my practice as a researcher. The research has reinforced an already held belief of the importance of working with parents, schools and children 'as one' rather than in separation.

In direct relation to the subject under investigation (mobile phones) and more widely, technology, I have inevitably become more aware of the implications for parents, teachers and pupils but have developed greatest insight into the influences on pupils. As a consequence of the insights gained from the present research I have become more confident to ask pupils about their experiences of mobile phones and technology as a way of understanding their friendship networks and influences. As a digital immigrant I had previously thought that the rapid changes in technology meant that I could not contribute or understand this area, however I now believe I am able to contribute as a psychologist – I suspect that this might be true for many other educational psychologists so as a profession we need to recognise the role which we can play from our knowledge of areas such as psychology, child development and

social interaction. Educational psychologists will have knowledge and skills to contribute when faced with modern technology and human interaction with them however this awareness may need to be raised. The following paragraph illustrates my assertion.

I am fortunate to have been able to contribute a succinct paragraph of information in a letter to parents from the head teacher following a fatal incident in one school. This paragraph was used to heighten awareness of the need to regulate use which was aimed at parents as pupils were writing messages and making themselves and others in the community vulnerable through what they wrote. Greater communication between themselves and pupils and their use of mobile phones and social networking sites was requested. The paragraph has now been permanently included in a letter which is used across the whole of the county by the critical incident team who work with head teachers and senior management of schools following critical incidents.

The effect the knowledge gained from this research has had on my practice ranges from my work with individuals through to my work as a systemic practitioner. As yet, I have not been asked to support a school in the development of a mobile phone policy or to help incorporate mobile phones into high schools. I work in 5 high schools and I believe they show a 'typical' spread of mobile phone inclusion in high schools. I would consider that 4 of the 5 high schools which I visit have very little experience of developing the role of mobile phones in school. I also understand that any 'mobile phone policy' is aimed at behaviour management for example 'no mobile phones in

class – if caught take the phone off the child and return at the end of the day’. As such the boundary between ‘protocol’ and ‘policy’ has not been clarified in these schools. The present research and its findings might be helpful in engaging schools to view mobile phones in a more dynamic way and not purely as a tool which requires behaviour management.

The one school which I believe to be more proactive in the development of use of mobile phones is a technology college. Where schools would want my input I would consider it important to find out the stage of development they were already at which would incorporate the e-maturity of the school as described within the literature review. It is important to acknowledge that different schools are likely to be at different stages in their ICT development. As a general rule I would like to see all schools develop policy guidance on mobile phones, whether this is as a discrete policy or part of a wider policy for example a safeguarding or Personal, Social and Health Education policy (PSHE). The present research has given no indication of the best place for any policy on mobile phones so I would recommend that the school identify how a mobile phone policy should be incorporated into current structures. Where a policy on mobile phones is placed could be evidence of the culture of the school and may act as part of a piece of action research.

Different approaches to incorporating mobile phones into school policy would have advantages and disadvantages for example if a policy on mobile phones was placed with safeguarding then the focus may be on risk and other potential benefits may be lost. The starting point would be to establish the purpose of the policy. Whatever the

purpose, I would like to see schools become more accepting and understanding of the importance that pupils and families place on mobile phones, not in a materialistic way, but as a modern day tool for social communication. I would encourage schools to develop a broader language about mobile phones in schools but anticipate that this would need to be done in conjunction with some safeguarding training so teachers and other adults in schools were more confident in safeguarding children in relation to technology. I would also anticipate that adults understanding of the psychosocial influences as found in this research on pupils and parents be explained.

I would also recommend that the policy was developed with the pupils and the parents and was reviewed on a regular basis. In this rapidly changing area it may be useful to learn from technology and incorporate a policy which is community built in the same sense that websites such as 'Wikipedia' are built. These rapid changes have been evidenced previously in my research but warrant further reflection on the implications not only for schools, families and pupils, but also for researchers.

5.5.5 General

A number of other general implications have arisen which are related to unique cultures in schools and wider society. The first implication of the present research is related to the psychosocial factors. It would be of some benefit to identify if there was any hierarchy of psychosocial factors which influenced the regulation and use of mobile phones in schools. If evidence of a hierarchy could be found, then schools

who wish to target interventions could do so. This may be of particular benefit in cases where cyberbullying has been an issue, or the use of mobile technology has made individuals or groups more vulnerable. Identification of hierarchical factors would allow for short, medium and long term interventions to take place.

Differences in teacher views within and between schools and the incidences of breaches in e-safety may vary. Future research could investigate whether there are any correlations between the number and types of breaches in e-safety and teacher views about mobile phones. Research to identify correlations between incidences with mobile phones and the whole school would help identify what works and doesn't work in addressing the possible risks that mobile phone technology poses.

5.6 Concluding comment

As the title of this thesis suggests, it has been an exploratory case study to gain perspectives from teachers, parents and pupils about the issue of the regulation and use of mobile phones in high school. The central question was aimed at determining if the regulation and use of mobile phones was influenced in high schools. A theoretical framework of psychosocial factors was developed based on literature reviewed and these were explored.

One central theme which sets this research apart from other research is the focus of the research with pupils, parents and teachers in the context of high schools. This

thesis outlines the methodology and results which contributed to the complexity of the answer, however it is noted that specific language used in Research Question 2 needed further explanation.

5.6.1 Researching a rapidly changing contemporary phenomenon

The development of the present research was hoped to transcend the technology to an extent and focus on the psychosocial influences which could be reproduced if new technology were introduced. I recognise though that this research is inevitably fixed in time and as technology moves on, the psychosocial factors and their influence are also likely to move on. I have proposed that the changes of influence are evident in the research between parents and pupils where the relationship moved from using the mobile phone as a bargaining chip to a mutually convenient device. This research may now act as a bench mark to identify the way in which psychosocial factors develop over time with changes such as increased use of mobile phones, increased access to the internet, the development of smaller, better, faster technology through the development of user friendly applications (apps). One such application named the 'Child Defence app' (BBC 2011) has been developed and is due for sale at the beginning of 2011. The developer of it claims that it is able to identify whether an adult is using children's language through texting or social networking and is specifically designed for the mobile phone (Isis Forensics, 2011). In my opinion this is the market pre-empting an increase in internet use on mobile phones and attempting to address possible criticisms.

Although it is a step in the right direction as it aims to keep children safe, there will be risks such as the over-reliance on its identification rate.

Initial evaluation found that the software used on ChildDefence was at least as good at determining if an adult is masquerading as a child as the server-based alternatives, with it correctly identifying all the masquerading adults in a recent trial. The software is currently undergoing final testing before being made freely available as iPhone, Google and Nokia phone apps.

(Isis Forensics, 2011)

Although parents may buy it for their children, the application by its nature fosters a sense of security and may not alter parent's regulation of mobile phone use as the parents in the present study believed mobile phones to be the least risky of technologies. It is possible that the new advances in apps will continue to reinforce this perception. It is possible that in the future mobile phone technology is perceived to be self regulating. Changes in software and hardware such as the application described briefly in the preceding paragraph might alter the way we interact with and perceive mobile phones now and in the future.

There still appears to be a large difference between schools in their policies on mobile phones. Some schools have no policy and some schools have individual policies on mobile phones. In my opinion this does raise several inconsistencies. I have randomly downloaded 4 such policies from schools and each one is similar to what is commonly regarded as an 'Acceptable User Policy' which was introduced for fixed technologies. The small sample I downloaded covers the purpose of the policy, the rationale behind it, and the responsibility of the user and the rules and

consequences. Whilst I believe that this is another step in the right direction there is no reference to what the school's policy is to support pupils in the event of incidences involving mobile phones for example in the event of receiving an offensive text message, accidentally spending money on the phone or being contacted from an unknown adult. Only one of the policies downloaded referred the reader to other policies and this was the 'Behaviour Policy'.

The 'policies' which I have seen are good as they give guidance and develop consistency of practice for the adults in school, but fail to name adults who have responsibility for the policy. The policies appear to have what I would see as disclaimers. One policy read 'It is the policy of the Governing Body to advise parents/carers and carers [sic] that mobile telephones should not be brought to school.' The same policy then continues for 3 pages to explain responsibility of the mobile phone user, consequences and sanctions. The lack of clarity on the role of the school in the area of mobile phones may be related to the perceived lack of advantages of utilising mobile phones in schools.

Informal evidence from speaking with pupils, parents and teachers has led me to believe that many children begin ownership of a mobile phone in year 7. The only policy from the 4 which I have read which promotes education of mobile phones states: 'XXX college [name not used for confidentiality purposes] aims to educate students in the responsible use of technology'. This institution provides education to 14+ year olds (Year 9). A different policy stated that mobile phones were allowed in the 6th form but were banned in yrs 7, 8, 9, 10 & 11. It is possible that the policy was

accurate at the time of writing it but change with mobile phones is so rapid that it may have become out of date. If schools and families do not adapt and educate children in the use and regulation of them at the appropriate time, then it will be left to the individual and the mobile phone companies. Inevitably, mobile phone companies will promote benefits and develop software which may help regulate use and reduce vulnerability of children but they are commercial ventures so this might be their overriding concern.

The present research has provided evidence to show how psychosocial factors influence the use and regulation of mobile phones in high school. This evidence is unique to the contextual conditions which pupils, parents and teachers are in when faced with managing this real life phenomenon within the physical constraints of the school.

Pupils and parents will need to make judgements on what to do, but I believe there is a role for educators to educate. The psychosocial factors of use and regulation may need to be incorporated into a curriculum such as the Personal, Social, Health Education curriculum.

The present research has highlighted specific psychosocial factors which are influenced by school cultures unique to individual school. Due to the methodology of the research it has been able to identify whether these influences are experienced across the three participant groups. This has led to a foundation on which other research can utilise and explore further.

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Appendix 1 – Possible functions and risks of a mobile phone

Telephoning		surfing the web	
Using MSN		Texting	
Cyberbullying		emailing	
Listening to music		Videoing	
Using for curriculum learning		Viewing inappropriate images	
Inappropriate grooming by adult		Financial loss eg premium rate ring tones / competitions	
Uploading of information to World Wide Web		Obsessive behaviour	
Sharing of images		Theft of mobile phone	
Other:			

School logo
here

Appendix 2 – School letter to parents



Address

Section 1.01 Head teacher Name, - Headteacher



17th March, 2009



Dear Parent/Guardian,

I am the Educational Psychologist for . As part of my professional development I am completing my doctoral studies in Educational Psychology and my thesis is based on researching the 'Influences on the Use and Regulation of Mobile Phones in Schools'.

I am working with the school to complete my research and to do this I need to conduct separate informal interviews with 1 male and 1 female Year 10 pupil. I will also need to conduct an informal interview with each child's parent/guardian(s). Each interview would last no longer than 1 hour and would be carried out at a convenient time and place. All participation will be made confidential.

I am sending this letter out to all parents of pupils in Year 10 and would be grateful if you could complete and return the reply slip below if you and your child are willing to participate in this research. I will then make contact with you to arrange the interview.

Thank you in advance for your participation.

Yours sincerely,

Chris Billington (Mr.)

Educational Psychologist



----->

Influences on the Use and Regulation of Mobile Phones in Schools

Name of Student: Form:

I am willing for my child and myself to participate in the above research.

Parent/Guardian Name:

.....

Contact Tel. No.

Please return to the school office.

Appendix 3 – Pilot study report

Results – Pilot Study

The pilot high school is an oversubscribed medium-sized Catholic High School (900 pupils) located in a shire county in the North of England. Students come from a range of social and economic circumstances although the immediate area has relatively low levels of deprivation. A very small proportion of students are eligible for free school meals and very few have learning difficulties.

The students are predominantly White British with a small number of students from other minority ethnic backgrounds. Students' attendance is good.

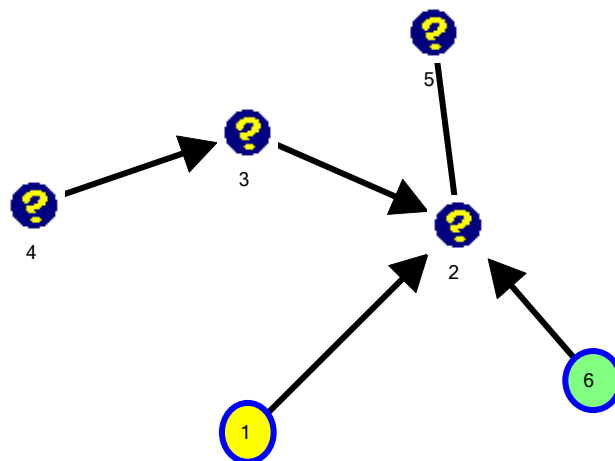
In addition to its specialist status for technology, the school gained specialist status for languages. The school achieved 'Healthy Schools' status and is also a 'Fairtrade' School.

The following is a report on the results from the pilot study. The results are based on:

- 2 'year 10' pupil interviews
- 2 interviews with parents of the pupils
- 9 returned teacher questionnaires (20% return rate).

The results are presented based on the emerging themes from all of the data gathered. The data has been separated by themes and related psychosocial factors (codes). Views are identified as being expressed by children, parents or teachers.

The emerging themes are represented by a diagram at the beginning of each section and quotations are used to illustrate individual points. The emerging theme for each diagram is represented by a yellow ellipsis shape. Arrows represent links between the theme and the code (one way and two way arrows are used for illustration only). Straight lines represent that although the codes normally clustered together, no links were found in the data with regards to the specific theme.



Example model

Number 1 (Theme) is the overall theme which emerged from the data analysis which may have many codes off it but for this example, only one has been highlighted.

Number 2 has emerged from the data as having links to Number 1 but in itself is not an emerging theme.

Number 3, which has links with 4, links to number 2.

5 is part of 2 but has not emerged from the data within theme 1.

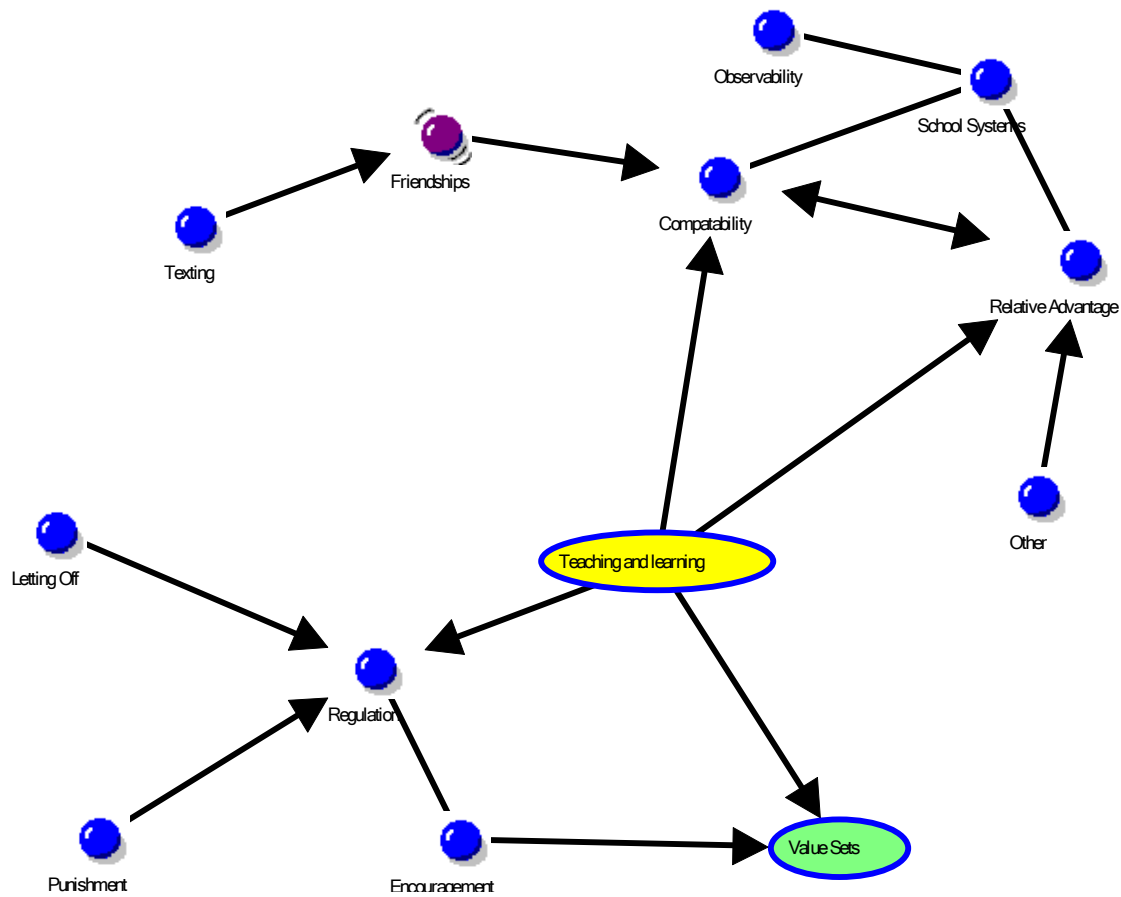
6 is a different theme highlighted within theme 1.

There is a final summary which draws together the chain of evidence presented in the findings. Hypotheses and final emerging themes will be represented when all the case studies have been analysed and cross-case analysis has been applied to identify repetition of themes.

Theme 1: Teaching and Learning

Teaching and Learning refers to any reference made to the times when pupils and teachers are actively engaged in a teaching and learning context. It does not include recreational times such as lunch breaks.

Model 1. Teaching and Learning



The model above highlights one of the themes and patterns which emerged out of the coding. It can be seen that there are two patterns which have emerged from the data analysis with regards to teaching and learning. These relate the teaching and learning to;

Compatibility (teachers feeling comfortable with the pedagogical approach used in the innovation) / Relative Advantage (a belief that the students benefit more from the innovation than past practices); and regulation.

Compatibility / Relative Advantage

The compatibility of having and using mobile phones within the teaching and learning context was not identified by the children or parents. The teachers who did mention

compatibility were split between those who could see some uses for mobile phones in teaching and learning and those saw no use for them.

I don't have any strong feelings about mobile phones, only that I do not want them in lessons unless they are being used as part of the lesson. This is not often but sometimes pupils download / share music / pictures for a piece of creative work.

(Pilot questionnaire 3)

Even though some teachers could see how mobile phones could be used in teaching, no-one identified any relative advantages of having them in the teaching and learning context. The responses with regards to Teaching and Learning and a whether or not the students benefited more from having mobile phones (Relative Advantage) were negative.

I personally feel that phones in school are just a way for pupils to become a distraction in lessons and around school. They are completely unnecessary!

(Pilot questionnaire 5)

Mobile phones were seen as a distraction from learning which influenced the regulation of them in that context.

Regulation

The regulation of mobile phones in the teaching and learning context was consistent; mobile phones are not allowed to be used in lessons.

In lessons I try to keep distractions to a minimum. I expect pupils to be focused so I don't allow them to use their phones in lessons.

(Pilot questionnaire 8)

The enforcement of the regulation varied with a few respondents identifying that some teachers let them off whilst other confiscated the phones. The teachers also identified this spectrum of responses. Both the teachers and the pupils identified that this was in part related to the age of the teacher and / or the length of time the person had been a teacher:

The younger teachers tend to let you off a bit more. The older ones are more strict. My friend got her phone taken off her today at school because she was walking from one lesson to the other lesson, she was walking from form to Period 1 in the morning and she was just seeing if she had got any texts and <teacher x>, who has been there for ever, he took it off her. She just kept complaining all day that she didn't have her phone, so we were all just laughing at her. The older ones tend to take it off us more than the younger ones. Sometimes they will just say "Put it away, I don't want to see it again" or if they have not seen it but they can tell you are on it they will just look at you and then you think and put it away quickly again.

(Pilot pupil)

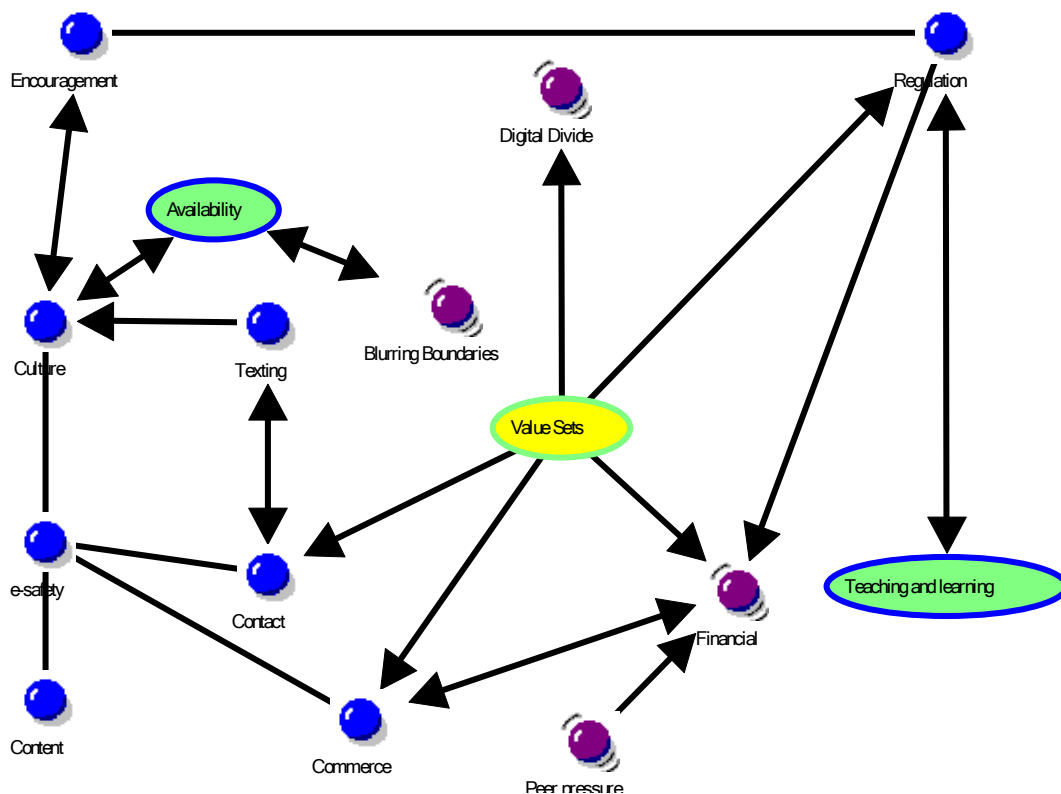
The punishment for having a mobile phone in the teaching and learning context was to confiscate the phone and to either return it at the end of the day or pass it to the head of year. This is in accordance with the school's guidance on dealing with mobile phones in school.

Some of the response indicated that Personal Values were important in regulating mobile phone use in the teaching and learning context. This influence was also identified to be wider spread than just in the classroom.

Theme 2: Values Sets

Value sets are linked closely with identity and belonging and relate to children, parents and teachers. In this study, value sets represent how individuals use and regulate mobile phones. This can be as part of their individual identity or their belonging to a wider group such as the school community, which is self-regulatory or not.

Model 2. Value Sets



Model 2 highlights Value Sets as an emergent theme from the coding. It can be seen that there are three patterns within the theme which have emerged from the data analysis with regards to Value Sets. Interestingly Value Sets cross the boundary of regulation and use of mobile phones and are represented by all three groups of participants. Predominant links are with E-Safety; Financial; and Regulation. There is some relationship between value sets and Digital Divides.

Digital Divide

There appears to be a digital divide between some of the sample teachers. Links can be made with compatibility of mobile phones within the wider school community where opinions vary:

I understand that they are a means of communication for parents but we all managed 20 years ago when phones weren't around! They serve no purpose to the education of pupils and so are not at all necessary!

(Pilot questionnaire 3)

Mobiles have become a big part of people's life and as being one of the younger members of the school, I can understand why pupils need them.

Pilot questionnaire 1

Whether or not there was an understanding why people needed mobile phones in school, the regulation of mobile phones was closely linked to value sets.

Regulation

Regulation was identified by the pupils as a personal thing that should be self monitoring.

I think they should be allowed at dinner time and break times and stuff like that, not really in lessons though because that's when you're meant to be learning, it's obvious that you shouldn't have your mobile phone out in lessons.
(Pilot pupil)

However this is sometimes challenged by cultural shifts and expectations. A much more tangible element which highlighted a pattern was with regards to finance or commerce.

Financial / Commerce

Contrary to previous literature, commerce with regards to mobile phone ownership was seen as a transition from childhood to adulthood where one takes on an adult role in self monitoring of financial affairs:

If I could have done it when she was 16 I would have done. She could have earned her money to pay her bills kind of thing, but it's about learning, learning that money doesn't grow on trees and it just doesn't come out of nowhere. It's learning how to manage money and manage affairs isn't it? Manage your life kind of thing and it's a good starting point.
(Pilot parent)

The mobile phone was referenced as a vehicle for the children to take on an identity of self monitoring and increased financial responsibility. It has also been identified that finance helps to regulate the use of the mobile phone. The conflict that the

children had to learn was that of resisting social pressure as there are financial consequences to it.

No, he's got a mobile phone, it might not be the most up to date mobile phone, it probably isn't the most up to date mobile phone, but he will make it last because, once again it's letting kids know the cost of things as well, it's really letting him know the cost of phones and things like that, he can't always have the next up-to-date which, like you say, their peers have got new mobiles, so no it doesn't influence me at all, he's got his phone, it works, it's one he chose, he's quite happy, he's never asked, I hope he doesn't.

(Pilot parent)

In addition to the risk of commerce, children, adults and teachers face other risks associated with mobile phones where value sets play a large part in regulation and use of phones.

e-safety

The risks associated with contact were seen as being regulated by individuals. The use of texting for saying nasty things to individuals was seen to be regulated on the whole by the individual who sends them

People will text people and be horrible to them, like in other schools, it is just the type of people they are.

(Pilot pupil)

However there were also issues identified with an emerging 'mobile phone culture' which was identified by all three groups. This was identified as a negative issue by all three groups.

It is just trying to teach them that process of needing to be in touch or her thought process is I need my phone and I need to be communication, I need to keep texting. They don't need to send as many text messages as they do, it becomes habit and it becomes a culture that is really unnecessary I suppose.
(Pilot parent)

Part of the culture which emerged was the apparent need to have a mobile at all times so that individuals were always networked or connected. This culture was also identified as contributing to the blurring of boundaries of time and space with text messages being received in the early hour of the morning. The physical boundaries of the school appeared to be inconsequential, with all three groups of respondents citing that children may need to contact parents.

A dichotomy was also identified in that parents did not want their child to use the mobile phone in school, but they wanted the children to have a mobile phone to be able to contact them.

I believe she needs to be able to keep in touch with me, you know I need that parental reassurance that I can get hold of her when I want to get hold of her and I expect to get hold of her whenever I want to get hold of her.
(Pilot parent)

The child then was seen as being constantly available. However it was also identified that 'traditional' forms of contacting the children were available to them all and this was regulated largely by people's values of their role in the school community.

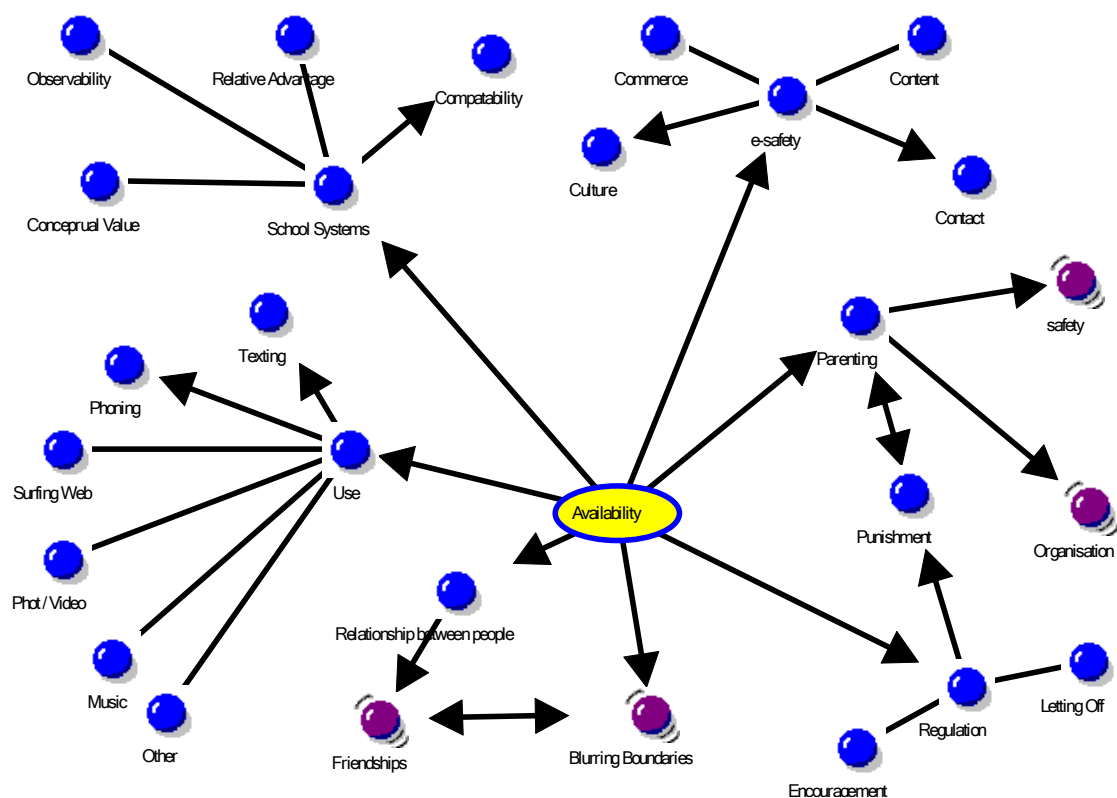
I wouldn't expect to have to get in touch her on her mobile during school hours. If I have a need it would be via school, because there would be a need and school would need to be notified. It would have to be important for me to contact her at school.
(Pilot parent)

It is to this extent that the need of availability has become a deciding factor in the use and regulation of mobile phones.

Theme 3: Availability

Availability refers to the networking of children onto an imaginative networked grid where they are available if they have their mobile phones available and they can also access others through the 'network'.

Model 3 Availability



The concept of always being available was referenced at least once by every person who took part in the pilot study, except for two of the questionnaire responses. Being available was seen to be such a significant factor that school systems had been adapted to meet the demand.

school rules about mobile phones have changed over the years because parents expect to be able to have contact with their children and vice versa (especially when going home on a dark night.)

(Pilot questionnaire 4)

This has put considerable pressure on school systems as the demand appears to have come from parents; however no-one mentioned that the children being available in school was compatible with schools systems. The relative advantage to the child was also questionable within the school context, but benefits were identified with regards to children's safety and their ability to change or make plans at the 'last minute'. These benefits were mainly in regard to being available for parents.

Parenting

The data indicates that a culture associated with mobile phones is that of making oneself available. This was initially expected between peers and this is apparent:

It (*referred to feelings about using mobile phones in school*) doesn't really affect me because if I need to speak to someone then I will quickly use it (*referring to mobile phone*) kind of thing.

(Pilot pupil)

In some lessons someone's texting me saying something then I'll probably text back.

(Pilot pupil)

This has also highlighted the immediacy and impulsivity of mobile phone use. It was surprising to see how many times the parents referred to needing to be in contact with the children for organisational or safety needs, as the parents had previously been talking in negative terms about the mobile phone culture and yet they seem to be actively encouraging it:

No but, yes it's not life, you don't go to work and leave your mobile phone in a locker do you, you have it there just in case. It's there for ... and I suppose a mobile phone saves you.

(Pilot Parent)

It appears that these safety needs are also being ingrained within the children:

So if my mum is trying to get hold of me and I have not got my phone she will start to panic because she can't get hold of me to find out where I am and stuff. Its more so my mum knows where I am and she knows she can just get hold of me if she needs me quickly.

(Pilot pupil)

people have said that you're not really meant to have your mobile phones in your pocket at school, but in a way you need it in case of emergency, because say if your on the yard and something pops up or somebody's hurt, you could call an ambulance and save seconds straight away.

(Pilot Pupil)

These apparent needs for safety and availability are contributing to the blurring of the boundaries between school and 'not school'. Roles and responsibilities are also blurred. The blurring of the boundaries and the immediacy of the mobile phone cause problems in school which can be sorted out, but add new pressures to the whole school system, where parents, children and 'the school' are even more connected and responsible to each other.

Occasionally if a pupil has been in trouble the child will phone home and give their version of the story before school has had a chance to contact parents. Sometimes this results in angry parents turning up to school - just takes longer to calm them down and give them the 'full story'.

(Pilot Questionnaire 5)

In some circumstances it has been seen that the mobile phone is used to keep in contact with friends from other schools, but this too has associated risks with it.

Some of them bring it to school just so they can text people through the day and keep in touch with all their friends who go to other schools and stuff like that.

(Pilot pupil)

we have had issues when a couple of girls have fallen out during the day and one has texted her 'friends' and they have arrived at the school gates at 3.05 ready to have a fight!

(Pilot questionnaire 4)

Whilst availability can be seen as a negative, it can also be seen as an aid to organisation between parents, children and the school. The pilot study referenced the usefulness of contacting parents through children's mobile's for last minute organisational issues, mainly in relation to clubs. No-one mentioned that this on-demand culture could be detrimental.

The data suggests that regulation of children's mobile phone use is affected by parental needs. Those parents who relied on the mobile phone for communication and safety mentioned being 'torn' between accepting some behaviours as a compromise to the child owning a phone. The ability to punish the child by taking the phone away or by affecting minutes or texts (predominantly through financial regulation) was contradictory to allowing the child to have the phone in the first place. The parents in this case study found their external regulatory powers compromised in some way.

The bit that I suppose I can't, I don't know if I can regulate her use of it without taking it off her. I think that's ... and because you want her to have it you live with certain evils because she has fallen within the category
(Pilot parent)

The parents in this pilot study regulated the use of mobile phones through financial means and the threat of taking it away. The more effective method of regulation was through education and encouragement of the child to use mobile phones responsibly. This was seen to link to the child's personal values.

The results of the pilot study found that the predominant need for 'being available' influenced the type of use of the phone. Texts were used the most followed by some calls being made although there were references to the mobile phones being used for other purposes such as: sharing music files; curriculum learning; sharing inappropriate and appropriate images; and videoing. The exposure to risk and

anxiety of negative consequences of allowing mobile phones in school appear to influence some teacher's tighter regulation of the school policy more than others.

Summary

Within this pilot study it is clear that mobile phones are part of the school but in conflict with elements of the school system. Most of the teachers who responded saw no relative advantage for the children. The teachers who responded did not feel that mobile phones were compatible with school, especially with regards to teaching and learning. This influenced all teachers to regulate the use of mobile phones in class through punishment which is in line with school guidance.

Most teachers responded that although they had personal feelings about mobile phones in school, those psychosocial factors did not influence how they regulated the mobile phones as their professionalism guided them to follow school policy. It was apparent though that those who had had negative experiences of mobile phones, or those who had strong views about their compatibility were more likely to be less tolerant of them in school. Evidence suggests that this may be linked also with the age of the teacher or number of years that person has been teaching.

The results highlighted that regulation of mobile phones in school was as much a personal responsibility for the children as it was a responsibility for the parents and teachers. Teachers were able to enforce school policy whereas parents were able to

regulate what the child was able to do with their phone through financial means and through education of values. The role for the parents in educating children how to use mobile phones responsibly was also highlighted.

The children's personal regulation of mobile phone use was highlighted, however there appeared to be a conflict with other psychosocial factors such as peer pressure; availability; and the conceptual understanding of mobile phones. Consideration needs to be made to what children believe 'using' a mobile phone is, as the children spoken to on this pilot study both said that they never really used their phones in school however they referenced times when they had texted and called within and out of lessons.

In some lessons someone's texting me saying something then I'll probably text back.

(Pilot pupil)

Appendix 4 – Teacher questionnaire case study 1 & case study 2

Thank you for taking the time to complete this questionnaire. I am the school's Educational Psychologist and am currently completing my doctorate. This research is part of my final thesis. Your answers will help develop and build up research evidence in an under researched area which is affecting all high schools in the U.K.

The questions are mainly open ended so there are no correct or incorrect answers. I am only interested in your opinions and personal experiences. There are only 12 questions and I have left space for answers. If you wish to add more, then please continue on the back of each page or on a separate sheet.

Your participation is anonymous. Some quotes may be used in the thesis and any subsequent publications. Every precaution will be made to ensure quotes used do not identify any individual or group of individuals.

I am asking you to fill this in as I would really value your responses with respect to the questions posed about mobile phones in school. I am trying to ascertain which feelings, thoughts, beliefs, attitudes, values and social factors, influence the regulation of mobile phones in schools.

'Regulate' :to bring into conformity with rule, principle or usage

'Regulation' : conforming to acceptable standards


(Collins Concise English Dictionary 3rd Edition, 1993)

Questionnaire to teachers.

- 1a. What experiences have you had of children and mobile phones in schools?
(please tick appropriate boxes)

Telephoning		surfing the web	
Using MSN		Texting	
Cyberbullying		emailing	
Listening to music		Videoing	
Using for curriculum learning		Viewing inappropriate images	
Inappropriate grooming by adult		Financial loss eg premium rate ring tones / competitions	
Uploading of information to World Wide Web		Obsessive behaviour	
Sharing of images		Theft of mobile phone	
Other:			

- 1b. How have your experiences, identified above, influenced your attitude towards mobile phones in school?



- 2a. List what thoughts, feelings and beliefs you have which influence how you regulate mobile phones in school? (e.g. I think...I feel...I believe...)

-
-
-
-
-
-
-

- 2b. How do your thoughts, feeling and beliefs influence how you regulate mobile phones in school?

3. How do your personal attitude and values influence how you regulate mobile phones in school?

4. How do your professional attitude and values influence the way in which you regulate mobile phones in school?

I am also interested in social factors which influence the regulation of mobile phones. These include social attitudes and values (culture) and social influences of peers, family and community.

5a. List the social factors which influence how you regulate mobile phones in school?

-
-
-
-
-
-

5b. How do the social factors you have listed influence how you regulate mobile phones in school?

6a. List the factors in the school community which influence how you regulate mobile phones in school?

-
-
-
-
-
-
-

6b. How do the factors within the school community influence how you regulate mobile phones?

7. What factors are there, in your opinion, which influence children bringing mobile phone in to school?

8. What do you believe are the most influential factors which determine whether children use mobile phones at school?

Thank you for taking the time to complete this questionnaire.

Appendix 5 – Guide to initial telephone calls to parents

Phone call script for parents

Hello, my name is Chris Billington <name of school>'s Educational Psychologist. I am phoning about some research which I am doing with <name of school>. I am phoning around to find some volunteers with pupils in yr 10.

Do you have a few minutes so I can explain the research in more detail?

(If no, Can I arrange a more convenient time to call?)

(If yes include the following in the script)

- Ed Psych D work on the influences on mobile phone use and regulation in schools – in 4 schools
- Overseen by the University of Birmingham
- Ethics accepted

- Your commitment – maximum 1 hour interview and your child maximum 1 hour informal interview re: views and experiences for reasons and motivations for mobile phone use
- Convenient time and place to meet you and child
- Confidentiality – Anonymous both child and you.
- You or your child are able to withdraw consent at any time.

Would you be willing to take part?

Can we arrange a date and time to meet?

Can I have your address so I can send you this information for you to read?

Thank you very much.

Appendix 6 – Summary of proposed research (parent and pupil)

Ed Psych D Research Proposal Christopher Billington

Psychosocial influences on the use and regulation of Mobile Phones in High Schools. Perspectives from pupils, teachers and parents, an exploratory case study approach.

Information for parents and pupils:

The focus will be on the views of teachers, parents and pupils and will explore the impact that is currently being felt by pupils, teachers and parents with the wider introduction of mobile phones in to youth culture. The influence of psychosocial factors and their impact on interactions between the three key groups (pupils, teachers and parents) will be explored.

The research will explore areas of tension and agreement with an aim to open up the debate on mobile phones in schools. The research is justified as schools experience new issues such as cyberbullying and are having to respond. The research will explore the impact that increased usage and accessibility to mobile phones has had on pupils, teachers and parents. In particular it will examine the broad psychological and social areas that are influencing the use and regulation of mobile phones. Areas such as sense of status and the extrinsic value of owning and using a mobile phone through to personal values, sense of belonging and other intrinsic motivations such as identity and connectedness.

Data will be collected by questionnaire to teachers, face to face semi-structured interviews with parents, and semi-structured interviews with pupils in year 10.

The ethical implications for the research are that all participants need to know that their comments will be made anonymous and may be shared with the other people involved in the research. Their views may also go to a wider audience such as publication in a journal; these may be in the form of anonymous quotes. Fully informed consent needs to be obtained. The school will also be anonymous in the reporting of the research. To increase

anonymity, pupil and parental views will not be directly linked. Although every step will be taken to create anonymity, it must be noted that it can not be guaranteed.

All participants will receive a short summary of the findings when they are completed. (Possibly Jan 2010).

Appendix 7 – Ethics and Safeguards

Ethical considerations based on guidelines from the British Psychological Society

Ethical considerations based on Ethical Principals for Conducting Research with Human Participants (British Psychological Society)	Strategies to address Ethical Requirements within the present study.
General – Investigation should be considered from the standpoint of all participants; threats to their psychological wellbeing, health, values and dignity should be eliminated.	Careful consideration will be given to any work with individuals and institutions to eliminate any threats.
<p>Consent – The investigator should inform all participants of the objectives of the investigation. Research with children who have limited communication should have consent obtained from those in ‘loco parentis’.</p> <p>Investigators should realise that they are in a position of authority and this relationship must not be used to pressurise participants to take part in or remain in an investigation.</p>	<p>Parents will be notified of the research via the normal school procedure. Parents will be asked for verbal consent to take part in the interview. A pre involvement letter will be given to children’s parents outlining consent with regards to their child. Vulnerable children will be identified by the head of SEN and the researcher and careful consideration of their needs will be documented. Identified needs and ways of overcoming these if needed will be used and evidenced in the case study protocol. For example, a child with hearing impairment may require equipment during discussion in the interview.</p> <p>Participants will be reminded at each point that they can withdraw at any time.</p>
Deception – The withholding of information or the misleading of participants is unacceptable.	No information will be withheld and no participants will be misled. Participants will be informed that anonymous quotes will be used in the case study report.
Debriefing – Investigators should provide the participants with any necessary information to complete their understanding of the nature of the research. The investigator should discuss with the	Briefing of the purpose of the research will be clear and each participant will receive a case study report.

participants their experience of the research in order to monitor any unforeseen negative effects or misconceptions.	
Withdrawal from an investigation – The investigator must make sure that all participants understand that they can withdraw from the investigation at any time (even retrospectively)	Participants will be reminded that they can withdraw from the research at any time.
Confidentiality – Information obtained about a participant during an investigation is confidential.	<p>The names of schools and individuals will not be used.</p> <p>It is possible that due to the small number of cases that individuals may be identified, the families involved will therefore remain anonymous to the school.</p> <p>It is possible that due to the nature of the cases, that individual schools will be identifiable. This will be made clear to all participants.</p>
Protection of participants – In research involving children, great caution should be taken to keep answers to questions private.	<p>The answers that children give will be anonymous. Quotes will be made anonymous.</p> <p>The views of parents and children will not be directly compared so as to increase the protection to participants' confidentiality.</p>

The maintenance of individual and institutional integrity is essential in all aspects of the research. Safeguards, such as confidentiality, are put in place to support this. The outcomes of the research will not be used in any subversive way to apply pressure on to individuals, groups or institutions to change their policies or practice. Ongoing support will be offered if, as a consequence of this research, further development work is required within the schools. Guidance will be given to pupils and or their parents if, as a consequence of this work they require further information with regards to any aspect of it.

Appendix 8 – Pre-interview script

Transcript read to all interview participants

Thank you for taking the time to talk with me. I am the school's Educational Psychologist and am currently completing my doctorate. This research is part of my final thesis.

The questions are mainly open ended so there are no correct or incorrect answers. I am only interested in your opinions and personal experiences. There are only 8 questions but we may discuss these further.

Your participation is anonymous. Some quotes may be used in the thesis and any subsequent publications and every precaution will be made to ensure quotes used do not identify any individual or group of individuals.

I would really value your responses with respect to the questions posed about mobile phones in school. I am trying to ascertain which feelings, thoughts, beliefs attitudes and values influence the regulation and use of mobile phones in schools.

I have used the word 'regulation' in its broadest sense, for times when school regulation, rules and policies are enforced, and for times when they are not i.e. looking the other way.

Do you have any questions?

Is it ok to carry on?

Appendix 9 – Pilot study and case study questions for parents and pupils

Pilot Study - Parent Questions

1. What do you do to regulate <name's> mobile phone use in and out of school?

Experiential

2. What experiences have you had of children using Mobile Phones?
 - a. Direct experiences?
 - b. Indirect experiences?
3. How have your experiences influenced your attitude towards mobile phones in schools?

Psychological

4. What attitude, beliefs, thoughts and feelings influence how you regulate <name's> mobile phone use?
OR if no or little regulation takes place then:
What attitude, beliefs, thoughts and feelings do you have about mobile phones in school?

Social

I am interested in social factors which influence the regulation of mobile phones. These include social attitudes and values (culture) and social influences of peers, family and community, including the school community.

5. What social factors influence how you regulate <name's> mobile phone?
OR if no or little regulation takes place then:
What social factors hinder or stop you from regulating <name's> mobile phone?

Regulation

6. How does all of what we have discussed, influence how you regulate <NAME's> mobile phone in school?

Use

7. What factors are there, in your opinion, which influence children taking mobile phone in to school?
8. What do you believe are the most influential factors which determine whether children use mobile phones at school?

Revised Parent Questions

1. Tell me what do you do to regulate <name's> mobile phone use? –relates to school?

Experiential

2. Tell me about experiences you have had of children using Mobile Phones?
(Show Table)
 - a. Direct experiences?
 - b. Indirect experiences?
3. How have your experiences influenced your attitude towards mobile phones in schools?

Psychological

4. Tell me what you think and feel about regulating <name's> mobile phone use?
 - 4a. How do they influence what you do?

OR if no or little regulation takes place then:

Tell me what attitude and beliefs stop you from regulating MP?
--

Social

I am interested in social factors which influence the regulation of mobile phones. These include social attitudes and values (culture) and social influences of peers, family and community, including the school community.

5. Tell me about any social factors which have an effect on how you regulate <name's> mobile phone?
 - 5a. How do they influence?

OR if no or little regulation takes place then:

Tell me what social factors hinder or stop you from regulating <name's> mobile phone?

Use

6. In your opinion, what things influence children taking mobile phone in to school? Why?
7. In your opinion, what makes children use mobile phones in school?

Pilot - Pupil Questions

1. What is done to regulate the use of your mobile phone in and out of school? – self; parent; teacher; other.

Experiential

2. What experiences have you had of using Mobile Phones in school? (What have you used your phone for? – link to box of choices)
 - a. Direct experiences?
 - b. Indirect experiences? (others using their phones)
3. How have your experiences influenced your attitude towards mobile phones in schools?

Psychological

4. What attitude, beliefs, thoughts and feelings influence how you use your mobile phone in school?
OR if no or little use takes place then:
What attitude, beliefs, thoughts and feelings do you have about mobile phones being used in school?

Social

I am interested in social factors which influence the use of mobile phones. These include social attitudes and values (culture) and social influences of peers, family and community, including the school community.

5. What social factors influence how you use your mobile phone in school?
OR if no or little use takes place then:
What social factors hinder or stop you from using your mobile phone in school?

Use

6. How does all of what we have discussed, influence / affect how you use your mobile phone in school? Experience; psychological; social.

Regulation

7. What factors are there, in your opinion, which influence pupils to bring mobile phone in to school?
8. What do you believe are the most influential factors which determine whether teachers regulate (unpack this) mobile phone use at school?

Revised - Pupil Questions

Explain regulate:

1. Tell me what is done to **regulate** the use of your mobile phone in and out of school? – self; parent; teacher; other.

Experiential

2. Tell me about experiences have you had of using Mobile Phones in school?
(What have you used your phone for? – link to box of choices)
 - a. Direct experiences?
 - b. Indirect experiences? (others using their phones)
 - c. How have your experiences had an effect on your attitude towards mobile phones in schools?

Psychological

3. Tell me what you think and feel about mobile phones in school? (positive? Negative)
How do they affect your use of MP?

OR if no or little use takes place then:
--

What attitude, beliefs, thoughts and feelings do you have about mobile phones being used in school?

Social

I am interested in social factors which influence the use of mobile phones. These include social attitudes and values (culture) and social influences of peers, family and community, including the school community.

4. Talk to me about any social factors which have an affect on how you use your mobile phone in school? (positive? Negative)
 - i. How do they affect?

OR if no or little use takes place then:
--

What social factors hinder or stop you from using your mobile phone in school?
--

Regulation

5. In your opinion, what things influence pupils to bring mobile phone in to school? Why?
6. In your opinion, what things make teachers regulate mobile phones in school?

Appendix 10 – Pilot questionnaire

Thank you for taking the time to complete this questionnaire. I am the school's Educational Psychologist and am currently completing my doctorate. This research is part of my final thesis.

The questions are mainly open ended so there are no correct or incorrect answers. I am only interested in your opinions and personal experiences. There are only 12 questions and I have left space for answers. If you wish to add more, then please continue on the back of each page or on a separate sheet.

Your participation is anonymous. Some quotes may be used in the thesis and any subsequent publications and every precaution will be made to ensure quotes used do not identify any individual or group of individuals.

I am asking you to fill this in as I would really value your responses with respect to the questions posed about mobile phones in school. I am trying to ascertain which feelings, thoughts, beliefs attitudes and values influence the regulation of mobile phones in schools.

I have used the word 'regulation' in its broadest sense, for times when you choose to enforce school regulation, rules and policies, and for times when you choose not to. i.e. looking the other way.


I am also interested in social factors which influence the regulation of mobile phones. These include social attitudes and values (culture) and social influences of peers, family and community, including the school community.

Questionnaire to teachers.

1. What experiences have you had of children and mobile phones in schools?
(please tick appropriate boxes)

Telephoning		surfing the web	
Using MSN		Texting	
Cyberbullying		emailing	
Listening to music		Videoing	
Using for curriculum learning		Viewing inappropriate images	
Inappropriate grooming by adult		Financial loss eg premium rate ring tones / competitions	
Uploading of information to World Wide Web		Obsessive behaviour	
Sharing of images		Theft of mobile phone	
Other:			

2. How have these experiences influenced the way in which you regulate the use of mobile phones in school?



3. What are your thoughts, feelings and beliefs about mobile phones in school?

4. How do your thoughts, feeling and beliefs influence your regulation of mobile phones in school?

5. How do your personal attitude and values with regards to mobile phones influence the way in which you regulate mobile phones in school?

6. How do your professional attitude and values influence the way in which you regulate mobile phones in school?

7. What social factors influence how you regulate mobile phones in school?

8. How do social factors influence how you regulate mobile phones in school?

9. What factors in the school community influence how you regulate mobile phones in school?

10. How do the factors within the school community influence how you regulate mobile phones?

11. What factors are there, in your opinion, which influence children bringing mobile phone in to school?

12. What do you believe are the most influential factors which determine whether children use mobile phones at school?

Thank you for taking the time to complete this questionnaire.

Appendix 11 Case study 1 report

RESULTS I: Analysis of case study one

In this section the qualitative evidence gathered from semi-structured interviews will be presented alongside the qualitative data gathered from the questionnaire. All three groups will be represented. Key concepts have been extracted from the data.

The first pattern code reported is Teaching and Learning. This is then followed by Value Sets and then Availability. The complex relationships are explored within the effects of the pattern codes on the regulation and use of mobile phones. A summary is provided at the end which draws together the implications for each group of individuals.

Effect of Teaching and Learning on Regulation and Use

Teaching and learning (pattern code)

– reference to the context of teaching and learning (predominantly classroom based or ‘timetabled time’ excluding lunch and break times).

An effects matrix has been developed based on the data. Coded psychosocial factors are separated into the three case study participant groups. Each descriptive and interpretative code is reported in the following sections.

- Relative advantage
- Compatibility
- Pedagogy

Effect of Teaching and Learning on Use and Regulation – case study 1

	Relative Advantage	Compatibility	Pedagogy
pupils	Pupil has used video to record work in class but for fun rather than curriculum learning – influences pupil use	Used for recording creative work – influences pupil use Distracting if used in class – influences teacher regulation Understanding of rules does little to alter use – influences pupil use	People are used to mobile phones – influences pupil use & influences teacher regulation Focus on learning in yr 10 – influences pupil use.
teacher	Only allowed to use phones if given specific permission – influences teacher use Used for a specific purpose to engage learners – influences teacher use No relative advantage to mobile phones – influences teacher use	Mobile phones are a leisure item and therefore not used in lessons but ok out of lessons – influences teacher regulation Risk of using them inappropriately (not compatible) – influences teacher regulation Listening to music can help students (compatible) – influences teacher regulation	
parents	Has seen it used on field trips to record information – influences parent regulation	Use of internet is not needed as school has fixed computers – influences parent regulation Phones should not be used in lessons –	Belief that phones should be allowed in school – influences parent regulation

		influences parent regulation	

Relative Advantage

– the belief that students and / or teachers benefit more from the inclusion of mobile phones in school, than in past practices.

Both the pupils and the teachers identified the possible advantage that the use of mobile phone technology had on lessons and pupils. Within the responses the teachers identified that if the mobile phone could be used to advantage in curriculum learning then it was. If there was no perceived advantage then mobile phones were not used.

(I) Accept (mobile Phones as) part of modern social life so utilise if possible in constructive way to engage students.

(Teacher 7)

The pupils did not mention any advantage to using mobile phones for curriculum learning. The times cited where work had been recorded were for fun rather than curriculum learning.

... I videoed something the other day in school, we made a massive paper chain in chemistry, it was erm, meant to be a polymer or something so made a massive paper chain which was like the length of the quad.

(When asked why it was recorded)

Just cos it was fun. (laugh)

(Pupil)

The parent responses indicated that the mobile phone was more likely to be used outside of school for educational reasons. These included field trips, and this influenced their regulation of mobile phones.

The responses coded as relative advantages to mobile phones in the high school were limited and this was reflected in whether the teachers and parents felt that mobile phones were compatible with the teaching and learning context.

Compatibility

– feeling comfortable or uncomfortable with the pedagogical approach used in having mobile phones in school.

The responses from the teacher participants indicated that views were split where some saw mobile phones as not being compatible with the teaching and learning context and others did. This was qualified by the teachers identifying them as having limited use for the curriculum and the increased risks that they posed within the school environment.

I don't want them out in the classroom - I would worry about inappropriate pictures, recording and also the distraction from lessons.

(Teacher PG 12)

I feel that students should understand that mobile phones are essentially a leisure item and therefore should never be used during class unless given permission.

(Teacher PG 10)

Views from parents indicated that mobile phones were not needed for teaching and learning. The main reason for mobile phones being used for curriculum learning might be the access to the internet and this was thought best to be done on computers.

The pupils reported that mobile phones were also sometimes used for recording creative work but this was for a personal record rather than a school record.

The pupils recognised that mobile phones could be distracting in lessons and this was likely to influence the regulation of them however this appeared to do little to influence their use of them. Their views on how mobile phones fitted with school were related to both their age as determined by their year group and their belief about what should be allowed in the teaching environment.

Pedagogy

– Anything relating to the principles, practice or profession of teaching.

None of the teachers' responses were coded as pedagogy in relation to teaching and learning.

Parents believed that mobile phones should be allowed in school regardless of their relative advantage or compatibility with teaching and learning. Although there was an understanding that they should not be used in lessons, the advantage to the parent and pupil as determined by the parent, appeared to outweigh the negatives.

I don't know cos I think they should be allowed mobile phones in schools although I don't agree with them using them in schools as you know all the time during lessons. But I think for my personal opinion I think I'm happy for her to have it during school but erm, I don't think its (attitude towards mobiles in school) changed on the whole.

(Parent)

Summary

The regulation of mobile phones appeared to be influenced by whether the teachers felt that they were compatible with the teaching and learning context. All agreed that the use of mobile phones in lessons was not acceptable and this influenced teachers and parents views on regulation of them but appeared to have little effect on the pupil's overall use. Parents felt that the little that they could do to influence use was to instil good personal values within the pupils.

Pupils responses indicate that they appear to make judgements on when to use mobile phones in lessons even though they agree they should not be used. The judgement of this appears to be dependant on their personal value sets which are influenced by other psychosocial factors.

Effect of Value Sets on Regulation and Use

Value sets (pattern code)

- these are personal to the individual in the context of identity and belonging. Self knowledge and individual responsibility.

An effects matrix has been developed based on the data. Coded psychosocial factors are separated into the three case study participant groups. Each descriptive and interpretative code is reported in the following sections.

- Peer Interaction
- Financial
- E-safety
- Well being

Effect of Value Sets on Use and Regulation – case study 1

	Peer Interaction	Financial	e-safety	Well being
Pupils	<p>Decision to text friend or reply to read a text in lesson is based on several factors – influences pupil use</p> <p>Identity through sharing similar values within a group or between peers – influences pupil use</p> <p>Social expectation to reply to a call or text – influences pupil use</p> <p>Ability to stay in contact with peers and therefore part of the group – influences pupil use</p>	Cost of internet and other services – influences pupil regulation	<p>Individual responsibility – influences pupil regulation and use</p> <p>Belief that teachers will regulate more if you use the phone in an unsafe way – influences teacher regulation and pupil use.</p>	Being without phone challenges identity and belonging and elicits physical reaction – influences pupil use
teachers	<p>Peer interaction can cause disputes – influences teacher regulation</p> <p>Pupils need to feel part of a group – Influences pupil use and teacher regulation</p>		<p>Use of inappropriate pictures – influences teacher regulation</p> <p>Theft of phones – influences teacher regulation</p>	

			Cyberbullying – influences teacher regulation	
Parents	<p>Mobile phone is a social communication tool – influences parent regulation</p> <p>Peer / social expectation that everyone has a phone – influences parent regulation</p> <p>Share use of phones functions – influences parent regulation</p> <p>Not influenced by peers to get 'best' phone – influences parent regulation</p>	<p>Type of phone package / contract – influences pupil use</p> <p>Type of contract – influences pupil regulation</p>	<p>Child's obsessive behaviours – influence parent regulation</p> <p>Other technologies seen as more risk – influences parent regulation</p>	<p>Reactions to mobile phone being withdrawn – influences parent regulation</p> <p>Dependency of mobile phone – influences parent regulation</p> <p>Trust in individuals responsibility to approach parent if wellbeing effected – influences parent regulation</p>

The pattern code identified some differences with responses between the three groups. The pupil and teacher participants spoke about regulation and use however the parent participants spoke predominantly about regulation.

Case study one identified a large influence of peer interaction on the Value Sets of individuals which influenced whether they used mobile phones in the teaching and learning context or not.

Peer Interaction

– an act performed with regards to peers. This includes social status, fashion, friendships and relationships between people.

The Teachers recognised that peer interaction influenced pupil's use of mobile phones as they wanted to be part of a group. The teacher participants also identified that pupil's use of their mobile phone with their peers could cause disputes and as such influenced the regulation of mobile phones.

I feel that they (mobile phones) create tension / conflict and allow ongoing revisiting of the original dispute / falling out.

(Teacher 2 case study 1)

The pupils reported that peer interaction influenced their use of the mobile phone. This included use within the teaching and learning context. The desire to be in contact with peers outweighed the risks associated with using it in class.

The data suggests that peer interaction influences use because it gives the pupil identity with their peer group.

... cos a lot of my friends are brought up in a similar sort of way to me so we know when to use it and when not to use it.

(Pupil)

There is also a social expectation of being contactable that was also readily identified.

I don't know cos people use their phones a lot nowadays and I think they think if they don't have it someone could text me and I need to text back so they seem to always like to seem to have to have it with them so they can text back, its part of like a part of daily routine is to have your phone with you like to always have it like near you so you can text back if anyone, so its like people depend on their phone to contact people and talk to people and stuff.

(Pupil)

This suggests that pupils leave their mobile phones on, not to call or text people, but so that they are networked.

The influence of peer interaction was also recognised by the teachers as influencing pupils' use of mobile phones. It was cited that the influences included social status, peer group behaviour and a worry of 'being out of the loop.'

Parents also reported that the need for the pupils to be in contact with their peers was an influence on their regulation of mobile phones. The data suggests that parents allow the pupil to have the mobile phones as a social communication tool.

The mobile phone as a social communication tool may influence the parents allowing pupils to have phones. This use of the phone to interact with peers may also influence the type of phone the pupil is allowed to have (the gadgets on the phone). The data suggests that the influence of peers does not have an overall effect on the cost of the phone.

Financial

– The cost of the technology. This includes reference to the packages e.g. unlimited texts

The pupil and parent participants identified the influence of cost on regulation and use. Parent participants identified that the type of package or amount of credit influenced the use of the phone.

The pupils identified that cost implication of packages, add-ons and the cost of the handset all influenced how they used the phone. Access to the internet was restricted due to cost and not the risks it posed.

e-safety

– The risks associated with the use of 'e-technology'. This includes risks of Content, Contact, Commerce and Culture.

The pupils did not mention the risk of e-safety as an influence on the use or regulation of their mobile phone even though they were aware of some of the risks.

Teachers identified several e-safety risks (as identified in the literature review) as influences on their regulation. These ranged from risks to the pupils, through to risks that the mobile phones posed to them as professionals.

Theft of confiscated phone from front of class in prior establishment makes me very reluctant to remove phones.

(Teacher 7)

Cyber bullying can happen in school and outside school. Problems occurring outside school can continue in school if mobiles are allowed to be brought into school.

(Teacher 9)

It was identified by parents that other technologies such as the internet were regulated whereas the amount of time spent on the phone and the use of it was not regulated to the same extent.

Obsessive behaviour with mobile phone use was identified as a possible risk of pupils owning a mobile phone and this was linked closely to the pupils' well being.

Well Being

– social and emotional health of individuals.

No teachers comments were coded as relating to well being. The parents' and pupils' responses indicated that the effect that mobile phones had on wellbeing was an increasing issue. Parents reported that they trusted pupils to make appropriate judgements with regards to their own well being and their personal use of the mobile

phone. This did not detract from one reported incident where the pupil's reaction to the mobile phone being taken away was one of 'hysteria'.

Obsessive behaviour, very much so. We did try and take it off her last week for half an hour and she went absolutely hysterical. Which worried me a lot.
(Parent)

The data indicates that wellbeing might be closely linked with the pupils' sense of availability which effects pupils' use of mobile phones. Keeping 'in the loop' appears to be emerging as an important factor and at the centre of this is a sense of availability.

Effect of Availability on Regulation and Use

Availability (pattern code)

- the networking of an individual on to a conceptual networked grid so that they are available and feel that they are 'more available' as a consequence of technology.

When the data was placed into an effects matrix, a pattern of use and regulation with regards to availability emerged.

Effect of Availability on Use and Regulation – case study 1

	Parenting	Organisation	Safety	Blurring Boundaries	Digital Divide
pupils	<p>Need to be able to contact parents – influences pupil use</p> <p>Need to be contactable for parents – influences pupil use</p>	<p>Needing things to be brought into school – influences pupil use</p> <p>Informing parent of a change of arrangements – influences pupil use</p>	<p>Used to let parents know where the pupil is – influences pupil use</p> <p>Pupil feels safer with mobile phone – influences pupil use</p>	<p>Contacting pupil in other schools – influences pupil use</p> <p>Contacting pupils in same school – influences pupil use</p> <p>Contacting parents during school – Influence pupil use.</p>	<p>Mobile phones have always been a part of pupil's life – influence pupil use</p>
teacher	<p>'emergency calls' to or from home – influences pupil use</p>		<p>The risk of pupils responding immediately rather than having time to reflect – influences teacher regulation</p>	<p>Pupils communicate between classrooms – influences teacher regulation</p> <p>Pupils communicate between school – influences pupil use</p>	<p>Pupils not able to put things off – influences pupil use</p>
parents	<p>Need to be able to contact pupils – influences parents use and influences parent regulation</p> <p>Need to be</p>	<p>Belief that the mobile phone is for co-ordinating plans between parent and pupil influences parent regulation and influences parent use</p>	<p>Mobile Phone allows greater independence – influences parent regulation</p>	<p>Pupils have grown up with availability which blurs traditional boundaries – influences pupil use</p>	<p>Pupils have grown up with mobile phones – influences pupil use</p>

	contactable by pupil or school – influences parent regulation and influences parent regulation					
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The pupils' responses were dominated by references to the effect on use which was affected by availability. Parents and teachers gave mixed responses which related to both regulation and use but both areas mentioned by parents were related to increased use with less regulation.

The influence that availability and parenting as psychosocial factors had on the regulation and use of mobile phones was evident in all three groups.

Parenting

– the facilitation of the extension of a wider reach of 'the home' beyond the physical house.

All three groups identified that the mobile phone had extended the wider reach of the home. The teachers recognised that some pupils' use of the phone was influenced by using it for 'emergency calls' to or from home. This was also reflected in the views of the pupils.

The need for the pupil to be available to be contacted by the parent and also for the pupil to be able to contact parents for a variety of reasons was identified as influences on the use of mobile phones.

...sometimes, like I text her if I have got a good result in a test.
(Pupil)

Parents also identified that mobile phones afforded them the opportunity to extend their reach of the home and that they too also wanted to be able to contact the pupil and to be contactable by the pupil.

I like her to have a mobile phone so I can keep in contact with her so yeh its my influence and I suppose peer pressure as well, if I didn't think she needed a mobile phone then peer pressure doesn't so it is my decision (for pupil to take a mobile phone to school).

(parent)

There appears to be a reciprocal arrangement between parents and pupils and although there were general reasons for parents and pupils. One of the influences came from the need to organise time and resources.

Organisation

– the co-ordination of people and resources.

No teachers comments were coded as being about organisation. The effect that organisation needs had on parents' regulation and use of mobile phones was evident. It emerged that parents encouraged pupils to take phones into school for this function. It also emerged that knowing that the pupil was available influenced parental use of mobile phones.

I think once they get to secondary school, I don't think they need to take them to primary school. Because once they do got to secondary school they are gaining more independence and they might be further away from home, they may have to get buses, you know the activities after school, that sort of thing and I think they probably need to be contacted or contactable.

(Parent)

The pupils' responses reflect those of the parents. The data indicates that the pupils are influenced by the ability to be connected and to organise things as and when they happen.

Yes (use it for phoning), at lunch time, not during lessons, just at lunch time and break time usually just to contact my parents <CB Q What would be the reason?> erm just but cos like say if we needed something I'd like ring them or say I'm doing something after school I'd ring them cos if they don't, my parents say if they don't ring back, ring them cos they might not have got the text, they might have been doing something but if they get a missed call then they can ring back.

(Pupil)

The mobile phone was also reported as a means of organising parents and pupils as an extension of safety issues.

Safety

– issues relating to danger or risk of injury; or freedom from danger risk or injury

The teacher participants recognised the risk that mobile phones posed as a consequence of pupils being able to react immediately and not having time to 'cool off'. This was believed to make the pupils more vulnerable. The data suggests that the expectation of availability between the parent and the pupil is reciprocal. The parent wants to allow more independence but also wants to feel that the pupil is safe. The pupil also wants to let the parent know where and what they are doing so that more independence is given to them.

... erm if I am going out with my friends I will use it to ring up my mum or my dad or whoever is at home at the time, or if I'm doing something and I cant ring them ill give them a quick them a text <CB Q For what purpose is that?>

well to like let them know where I am if I go into (place name) meet my friends and we get the bus to (place name) then ill text them to say that I'm safe or whatever.

(Pupil)

Although the use of the phone for safety reasons is outside of the school, the influence that this psychosocial factor has crosses the boundary between the school and the home.

Blurring Boundaries

– the crossing of physical, time and conceptual boundaries.

The data suggests that the blurring of boundaries affects all three groups in similar ways. Pupils report that they text parents at home, pupils from other schools, pupils not in their class but in the same school and even pupils in their class.

... some people text the same people in the same class sometimes its like, say if they're not allowed to talk, they'll text them instead and they'll text back, they'll sort of have a conversation from across the classroom.

(pupil)

The teachers reported that they were aware of the influence on the pupils of being able to communicate between classes and the impact that it has on the teaching and learning context. The ability for the mobile phone to cross physical boundaries increases the number of people that can pass and receive messages.

Pupils seem to text each other constantly (form of gossip - used to be passing notes in class - now can be done between classrooms!)

(Teacher 12)

The parents mentioned that the pupils had grown up with the technology which makes them and others constantly available.

It's the norm now that you are contactable 24 hours a day wherever you are and I think that's what they've grown up with so that if they feel they have to ring their friend at another school or text their friend who goes to another school or parent then they can, and so they do.

(Parent)

The teacher's perception of the compatibility of mobile phones within the school context is influenced by experiences. Risks of blurring boundaries and availability are cited as reasons for greater regulation.

A major problem here is that if there has been an incident / falling out between pupils in school, in previous time's pupils would have gone home, cooled off and come in the next morning possibly in a more positive state of mind. With mobile phones, comments / arguments can continue and in some cases drag other participants in. The ability to 'have your say' immediately without time to reflect on the consequences is I find a major problem. Adolescents in some cases have not developed the social skills to foresee the implications of things written and said in haste. Mobile phones in some cases have allowed incidents to be blown up out of all proportion.

(Teacher 13)

There is a difference between those who have grown up experiencing blurred boundaries and those who have not. This is known as a digital divide and is apparent in the data.

Digital Divide

– *An identified difference between two or more groups in relation to understanding or using technology.*

Parents and pupils recognised that there may be differences between those who have grown up with the technology and those who have not. The data shows the effect of this is that pupils are constantly available and networked.

Now people are brought up with technology so its like always there cos I mean most people have TV's in the house and a computer or I mean a mobile phone or whatever and its just like always been there and I think that's why a lot of people do texting and stuff in school.

(Pupil)

The data shows that the pupil participants believe that having a mobile phone in school and always on their person is the normal thing to do. Teacher participants believed this to be an influence in not being able to put things off. Pupils are used to being available all the time, even in lessons. The evidence is that availability influences pupils' use of mobile phones in the teaching and learning context.

Summary

Case study one has identified that mobile phones are a large part of the school and family system for the participants. The participants identified that the school system has minimal effect on influencing the pupils' use of mobile phones.

The teacher participant responses were mixed, which might reflect different experiences and personal uses of mobile phones. The data gathered from the teacher participants indicates that although some teachers try to use mobile phones in school, they are not reported as integral to the delivery of education. The data

suggests that the teacher participants' views were split between those who believe that mobile phones are not compatible within this school in the teaching and learning context and those who do believe mobile phones are compatible. Teachers in case study one were concerned about e-safety issues in relation to mobile phones.

The teacher participants mentioned that they regulated mobile phones in school so that they could teach. There was some reporting of reluctance to regulate use through confiscation of mobile phones because of the financial value of the item and the responsibility of handling the phone. There were also concerns about the boundaries being blurred which meant that information could be passed around the school immediately without time to reflect which may create 'hysteria' within the school context.

The data from the pupil participants indicates that they believe that mobile phones should be allowed in school. This belief influences their use of them.

The pupil participants were aware of the reasons for regulation within the teaching and learning context however the data suggests that this does little to effect behaviour change or influence their use of mobile phones.

The data from the pupil participants suggest that the use and regulation of mobile phones is highly influenced by pupils' value sets. The financial implications of loss influenced use more than the awareness or reference to e-safety. Pupil participants'

uses of mobile phones were influenced by peer interaction. This included staying in contact or sharing similar values to other pupils.

The data suggests that availability of the pupil participants and of their parents and peers also has a significant influence on whether they use their mobile phone. The effects of being 'networked' and available have implications for boundaries between home and school. The boundaries are blurred and consequently this influences use of mobile phones. It was recognised that the pupil participants have grown up in a networked society.

The data from the parent participants reflected the concept of being networked. A strong influence was that of being able to contact and be contacted by pupils so that plans could be organised and safety needs could be met. The influence of availability had a significant influence on the parent participants' use and regulation of mobile phone use.

The parent participants reported that the regulation of mobile phone use was mainly dependant of developing a good relationship with the pupil and developing their personal values. Trust in the pupil's judgement was reported as one influence on the parent participants' regulation.

Within the teaching and learning context, the parent participants agreed that mobile phones should not be used socially. The data did not indicate that there was a belief that mobile phones should be used for curriculum learning.

On balance, the parent participants agree that phones should not be used in the teaching and learning context and that they should be regulated however they would still encourage the pupil to take a phone to school so that they can be available. The data indicates that the regulation of the mobile phone is predominantly regulated by the user.

Appendix 12 – Case study 2 report

RESULTS II: Analysis of case study two

The qualitative evidence gathered from semi-structured interviews will be presented alongside the qualitative data gathered from the questionnaire. All three groups will be represented. Key concepts have been extracted from the data.

The first pattern code reported is Teaching and Learning. This is then followed by Value Sets and then Availability. The complex relationships are explored within the effects of the pattern codes on the regulation and use of mobile phones. A summary is provided at the end which draws together the implications for each group of individuals.

Effect of Teaching and Learning on Regulation and Use

Teaching and learning (pattern code)

- reference to the context of teaching and learning (predominantly classroom based or 'timetabled time' excluding lunch and breaktime).

An effects matrix has been developed based on the data. Coded psychosocial factors are separated to identify relationships between the three study participant groups (Parents; Pupils; and Teachers) so that the following results can be reported.

The teachers responded with reference to regulation and use within the Teaching and Learning context. The pupils and the parents also expressed views within the Teaching and Learning context which covered the areas of:

- Pedagogy;
- Compatibility; and
- Relative advantage.

Effect of Teaching and Learning on Use and Regulation – case study 2

	Relative Advantage	Compatibility	Pedagogy
pupils	Belief that pupils should be allowed to use mobile phones for music – influences pupil use.	Should be allowed them but not in lessons – influences pupil use. Phones should be taken off you if you get caught texting during lessons – influences pupil use. Awareness that mobile phones are distracting to self and others – influences pupil use.	School rules – influence teacher regulation and influence pupil use.
teacher	They can enhance learning in some lessons – influences teacher use. Some can't see any advantages but feel there should be some – influences teacher use and teacher regulation. Some can't see any advantages – influences teacher regulation.	Can be compatible with learning and used in class with close monitoring – influences teacher use and teacher regulation. Not compatible and are a distraction to learning – influences teacher use and teacher regulation. Ok to use mobile phones but not in lessons – influences teacher regulation. More negative than positive outcomes – influences teacher regulation.	Different conceptual understanding of use – influences teacher regulation. Concerns with technology which are less easily regulated – influences teacher use. Teachers follow policy guidance on regulation – influences teacher regulation.
parents		Belief that they could be disruptive	Advantage of phone in school

		during lessons – influences parent regulation.	outweighs any disruption caused – influences parent regulation.

Relative Advantage

– the belief that students and / or teachers benefit more from the inclusion of mobile phones in school, than in past practices.

No parents' comments were coded as relating to relative advantage. Pupils' responses were limited to the use of mobile phones in class to listening to music whilst working.

The teachers commented on how mobile phones could be used to benefit the students in the teaching and learning environment and the influence of this affected how mobile phones were used to aid teaching and learning.

Opinion between teachers was divided on whether there was an advantage to using mobile phones in the teaching and learning context or not. Some of the responses from the teachers showed that their attitudes had been influenced by negative experiences.

The data showed that some teachers who had had negative experiences still attempted to find some advantages to having mobile phones in the school.

I know that we need to embrace new technologies but in school phones have more negative than positive outcomes.

(Teacher questionnaire 2)

Other teachers 'harnessed' the technology through videoing and using the phones for things such as peer reviewing.

Compatibility

– feeling comfortable or uncomfortable with the pedagogical approach used in having mobile phones in school.

Participant comments from pupils, teachers and parents indicated that mobile phones were not compatible within the teaching and learning context. This influenced the pupils' acceptance of regulation but did little to influence their use.

I just like I just say I don't like use it during school, I just use it at break and everything.

(Pupil)

The same pupil after saying they did not use it at school said:

I don't know... <CB are you more likely to take a risk and use it?> well yeh....I use it more (when peers are involved), its like you miss something (part of the teaching) cos your texting and your not concentrating or something and you are waiting for a text back and everything, like that. <Q sometimes in lessons?> yeh.

(Pupil)

There was evidence from the teacher participants which indicated that some believed that mobile phones could be compatible with teaching and learning. Both views influenced the regulation and use of mobile phones in lessons.

Pedagogy

– Anything relating to the principles, practice or profession of teaching.

The pupils and parents could understand that mobile phones in school posed a challenge to pedagogy but the effects of this varied between the parent and the pupil. The pupils tended to agree with the influence that this had on regulation.

I don't think they like you taking pictures, that's the main reason I think they don't want you taking pictures of each other because like there was once somebody videoed someone and two people were fighting. And someone videoed that and then it went around the school and then it was on u-tube and stuff.

(Pupil)

There is evidence that this understanding of the effects on pedagogy has little effect on their use.

we take photos even though we are not meant to but if you get caught you are in trouble.

(Pupil)

The views of the parents indicated that although they could understand that mobile phones might cause disruption in the teaching and learning environment, the advantages to the pupils taking mobile phones to school appeared to outweigh this view to the point where there is open disregard for school policy.

I don't know whether I'm influenced by the school, I suppose if I was maybe I would say she couldn't take the phone to school at all but I just think I'm a better judge of that.

(Parent)

Concerns with difficulty in regulating mobile technology influenced how teachers used them and led to teachers following school policy on regulation regardless of

their personal values. The data indicates that teachers believed that regulation was the individual responsibility of the pupil which was influenced by value sets.

Effect of Value Sets on Regulation and Use

Value sets (pattern code)

– these are personal to the individual in the context of identity and belonging. Self knowledge and individual responsibility.

The pupils and teachers spoke about both regulation and use however the parents spoke predominantly about regulation. The data has been placed into an effects matrix which is split into:

- Peer interaction
- Financial
- E-safety
- Well being

Effect of Value Sets on Use and Regulation – case study 2

	Peer Interaction	Financial	e-safety	Well being
pupils	<p>Desire not to be left out and belonging to a group within school – influences pupil use.</p> <p>Friends being without a phone is regarded as unusual and challenges identity – influences pupil use.</p> <p>Desire not to be left out and belonging to a group not at same schools – influences pupil use.</p> <p>Photos are taken to be part of the group as peers take photos – influences pupil use.</p> <p>Desire to belong to the group encourages access to the web – influences pupil use.</p>	<p>Don't use internet because it costs – influences pupil use.</p>	<p>Individual responsibility regulates 'bluetooth' access to other people's phones – influences pupil regulation.</p> <p>Individual responsibility regulates distribution of images – influences pupil regulation.</p> <p>Belief that teachers will regulate more if you use camera due to e-safety risk – influences teacher regulation and pupil use.</p>	
teacher	<p>Pupils need to feel part of a group – Influences pupil use and teacher regulation</p>	<p>Teachers have to balance non-compulsory use of phones in lessons as they can't assume everyone can afford one with the</p>	<p>Unpleasant texts and photographs – influences teacher regulation</p>	<p>An understanding that mobile phones are part of youth culture – influences teacher regulation.</p>

		gadgets to be used for learning – influences teacher use.		Recognition of importance of mobile phones to individuals – influences teacher regulation.
parents	<p>The type of phone is not influenced by peers but by price, however ‘gadgets on the phone are influenced by peers - influences parent regulation.</p> <p>Belief that pupil is with friends and does not need to text them – influences parent regulation.</p> <p>Social obligation for pupil to have a phone so they are not left out – influences parent regulation.</p>	<p>No need for services in contract such as internet so they are not paid for – influences parent regulation.</p> <p>‘Cost’ of new phones must be within the contract deal- therefore type of contract regulates use – influences pupil use and parent regulation.</p>	No risks perceived from mobile phone use – influences parent regulation.	‘Hate’ being without phone influences belief that pupils also need to be with their phone – influences parent regulation.

Peer Interaction

– an act performed with regards to peers. This includes social status, fashion, friendships and relationships between people.

The Teacher participants recognised that peer interaction influenced pupil's use of mobile phones as they wanted to be part of a group.

Both parents and pupils reported that peer interaction influenced the use and regulation of mobile phones. The pupils reported the influence that it had on use of the mobile phone, the use ranged from texting (at all times in school) through to taking photographs.

It was identified that when friends did not have a mobile phone on their person it was regarded as unusual. The paradox was identified by the pupils that these pupils were the one who were following school rules.

I don't really think of it because, I don't know, I don't think of anyone, I don't know, I know that everyone has a mobile phone in school even though you are not allowed, its norm... <CB were you about to says its normal?> yeah, cos if somebody says to me that they don't have their phone with them I just think why not? Even though the rule is that you're not meant to have them so they're actually right! For not having their phone!

(Pupil)

The other identified influence that peer interaction had was that on belonging to a group of people. This was set in two different contexts:

- that of groups within the school which may have been separated by classrooms or silence within the lesson; and

- those who stayed in touch with peers at different schools.

Parents' views indicated the influence of peer interaction and the desire to have their child included. This meant that parents might actively encourage their children to use mobile phones.

... with the music thing they don't do it as much now but I used to notice kids all over rapping into their phones erm I just thought it was interesting and in some respects I did encourage it.

(Parent)

Parents' regulation of mobile phones has been influenced by peer interaction. It was indicated that there was no reason for pupils to use their phones in school as all their friends were there and so there was less reason to regulate the use of the mobile phone.

Peer interaction also influenced the choice of phone which was purchased. The type of gadget which the phone had influenced choice so that the pupils could use their phones within the group of friends.

However the cost of the phone had a greater influence over the choice of phone and contract.

Financial

– *The cost of the technology. This includes reference to the packages e.g. unlimited texts*

It was identified within the teacher participants that finance plays a part when they make a choice on whether to use mobile phones as part of curriculum learning and therefore influences their use of it.

cost - non compulsory use in lessons to ensure no pressure of students feeling they should have phones.

(Teacher 3)

The costs of packages or contracts were the main regulators of what and how much of the services the pupils could use on their phone. Both parents and pupils cited the access to the internet being restricted due to cost. This appeared to be an unconscious decision which led to some form of regulation. The regulation of access to the appeared not to be decided on because of e-safety issues.

e-safety

– *The risks associated with the use of 'e-technology'. This includes risks of Content, Contact, Commerce and Culture.*

The data indicates that the teachers' regulation of mobile phones in school is influenced by e-safety issues.

(Q. *List the factors in the school community which influence how you regulate mobile phones in school? Answer:)* unpleasant texts and photos are avoided by banning use in general.

(Teacher 2)

The parents, although aware of e-safety risks, did not cite this as an influence on how they regulate the use of mobile phones.

It was interesting in your list you know like in bullying, I'm aware of these things but I don't in some respects regulate his phone.
(Parent)

In contrast, when the pupils comments related to e-safety and value sets, they used it as a form of self regulation. This impacted on who they shared their experiences with but not on how they used their phone whilst at school.

..like sending images to each other but like if they've been in the picture.
(Pupil)

Well Being

– social and emotional health of individuals.

The pupils' comments did not highlight the role of well being on influencing their use and regulation of mobile phones. The teachers and the parents were more aware of well being issues, and this understanding influenced leniency in regulation in both parents and teachers.

I realise how important a mobile phone is to the individual and if the individual is co-operative then the phone is usually returned either at the end of the lesson, or day.

(Teacher Questionnaire 6)

...but I've gone out and I've left my phone at home and I hate it because I think should the school...all I think about is the pupils that should they want to

contact me the school contact me.
(Parent)

The parental comments which have been coded as relating to well being indicated an emotional discomfort for the parent at the thought of themselves or the pupils leaving the home without a phone.

Effect of Availability on Regulation and Use

Availability (pattern code)

- the networking of an individual on to a conceptual networked grid so that they are available and feel that they are 'more available' as a consequence of technology.

When the data was placed into an effects matrix, a pattern of use and regulation with regards to availability emerged. The teacher participants reported regulation whereas the pupil participants cited the effect that being available had on their use of mobile phones.

Parents gave mixed responses which related to both regulation and use but both areas mentioned by parents were related to increased use with less regulation.

Effect of Availability on Use and Regulation – case study 2

	Parenting	Organisation	Safety	Blurring Boundaries	Digital Divide
pupils	<p>Have to take it with them when leaving the house – influences pupil use</p> <p>Use mobile phones more to contact 'mum' when at school- influences pupil use</p> <p>Its normal to be in contact with mum throughout the day – influences pupil use</p>	<p>If they need 'stuff' they send a 'quick' text during school – influences pupil use</p> <p>Use it to remind parents of things – influences pupil use</p> <p>Organising to meet friends at break – influences pupil use</p>	<p>The need to let parents know where they are - influences pupil use</p> <p>Pupils believe that they need the mobile phone for safety –influences pupil use</p>	<p>Pupils disregard time and space to text parents as they are available – influences pupil use</p> <p>Pupils disregard time and space to text friends as they are 'available', the desire not to miss out – influences pupil use</p> <p>Contact others in different schools – influences pupil use</p>	<p>Pupils have their phones on all the time – influences pupil use.</p>
teacher		<p>Understanding that mobile phones are used to contact home – influences teacher regulation</p> <p>Teachers take advantage of pupil's mobile</p>	<p>Some acknowledgement that phones can make pupils more vulnerable – influences teacher regulation</p> <p>Some belief that</p>		<p>Personal use is for emergency only and school can do this so they are not needed – influences teacher regulation</p>

		phones to sort out after school clubs – influences pupil use and influences teacher regulation	pupils are safer with mobile phones -influences teacher regulation		
parents	<p>The ability to ‘parent’ by availability influences use to the point of total disregard for school rules and policy – influences parent use and influences parent regulation</p> <p>The need to ‘keep in contact’ promotes use during school time- influences parent use and influence parent regulation</p>	<p>The need to organise modern life – influences parent use and influences parent regulation</p> <p>Organise after school activities such as having friends home – influences pupil use and influences parent regulation</p>	<p>The perception that pupils are safer and more independent with their phones outweighs any potential risks – influences parent use and influences parent regulation.</p>	<p>The physical school boundary is blurred by the ‘networked grid’ and the desire to keep contact or be available on that grid – influences parent use – (even though parents acknowledge there are other means of communication e.g. the school office.)</p>	<p>Understanding that phones can be turned off but there is a social pressure and need to be available on pupil - influences parent use and parent regulation.</p> <p>Pupils take their phones with them and availability is taken for granted – influences parent use and parent regulation</p>

Parenting

– the facilitation of the extension of a wider reach of ‘the home’ beyond the physical house.

None of the teachers’ comments were able to be coded as relating to parenting. The concept of parenting by availability emerged from the data. This meant that the parents spoken to believed that they needed to be available to the pupils throughout the school day. The influence that this had on use and regulation was for the parents to actively encourage the pupils to take the mobile phones to school and for parents to keep theirs on whilst the pupil was at school.

well I let them take them into school, to be honest doing this, its quite, you know things go on and I’m kind of thinking, why do I, why in a way because they are quite, they go to school I know they’re at school when they come home yes you know they have their own time, but in actual school in some respects I don’t know why I let them take them its kind of what I’m thinking about now erm I suppose just to have that contact say if I was at work and I couldn’t get back and things like that or maybe they weren’t feeling well or something plus its that contact.

(Parent)

This need of availability appear to be reciprocal, with the pupils also citing that they used the phone in school to be in contact with their parent.

If I think I just need to send my mum something, I just get it out and text her.

(Pupil)

There appears to be an understanding in the school that there are times when pupils are allowed a mobile phone if there is a specific need. However the everyday reciprocal need to be available influenced pupils and parents to use mobile phones in

school disregarding perceived school rules. The use of mobile phones was in connection with a variety of psychosocial factors such as organisation and safety.

Organisation

– the co-ordination of people and resources.

Comments from teacher participants identified an understanding as to why parents and pupils would need to be in contact with each other to co-ordinate times and places. This influenced their regulation and how they asked the pupils to use the phones. Some teachers mentioned that they took advantage of the fact that the pupils had mobile phones and asked pupils to co-ordinate after school arrangements for individual pupils.

The pupils mentioned that they co-ordinate where and when to meet up at break times with their friends. The data also indicated that the mobile phone was used to co-ordinate home resources. This included times when the pupil had forgotten something and needed it or when they were asking or reminding their parents about something.

I use it for everything <CB Q can you tell me what everything is?> I don't know, like the other day I was reminding my mum to pick me up from gym and cos she's forgetful so I just reminded her I don't know,
(Pupil)

This need to co-ordinate and organise was reciprocated by the parents as the social influence of modern life puts them in the position of being available. The need to organise influences their regulation of mobile phones.

...if she's out of a lesson after school early then I'd rather she ring me than be hanging around school waiting for half an hour waiting for me to come and pick her up. So yeah, maybe I disagree with the school there if they are sort of saying that they shouldn't have them at all.

(Parent)

Safety

– issues relating to danger or risk of injury; or freedom from danger risk or injury

Parents and the pupils identified that being able to co-ordinate movements made them both feel safer. It was also mentioned as a specific point in relation to a wider sense of belonging which makes the individual feel safe.

...parents, er, friends I guess cos I don't know, I don't know why I brought my phone in *(to school)* I just, it's just for safety that's all...

(Pupil)

Parents perception appeared to be that there were increased benefits with regards to safety, to pupils owning and using a mobile phone which outweighed any potential risks.

I do think that she does need it cos she's 3 miles from home she gets the bus so if the bus doesn't turn up which quite oftenthe last year that quite often happened, they had problems with the bus, she can ring me and I'd rather she had her phone and disobeyed school than be start walking home because she couldn't ring me.

(Parent)

The teacher participants identified safety as a reason for parents wanting the pupils to have a phone however the risks of owning a mobile phone and the potential that a mobile phone might have in making a pupil more vulnerable were also mentioned.

Blurring Boundaries

– the crossing of physical, time and conceptual boundaries.

The data suggests that the availability which mobile phones afford has blurred the boundary between the school and the home. The use of the mobile phone through texting has also impacted on the boundary of time. The immediacy of the mobile phone appears to have influenced the use of them by both the parent participants and the pupil participants. The boundary between school, home and work appears to have been blurred.

Digital Divide

– An identified difference between two or more groups in relation to understanding or using technology.

The pupil participants recognised that they and other pupils had their mobile phones on all of the time. Teacher participants comments indicated that there was a belief that mobile phones were not needed because the schools had landlines and that mobile phones should be used purely for emergencies. Other teacher participant comments indicated an understanding as to the need for pupils to have mobile phones.

The parent participants were influenced by the need to be available and to have the pupils available in and out of school. This influenced the regulation of the pupil's phone as parents actively encouraged pupils to take them.

she just lets me have it, I always have to...if I'm going out then I always have to take it with me then <CB Q going out?> just out, just if I'm going out on my own or if I'm off to meet friends then I have to take it then, if I go outside the house.

(Pupil)

Summary

Within this case study it has been made clear that mobile phones are an integral part of school and family life. The data suggests that mobile phones conflict with some elements of the school system.

The teacher participants were mixed in their responses and this might be reflective of the mix of individuals who completed the questionnaire. The responses do not indicate whether the teacher participants do or do not regulate mobile phone use, but how and to what extent they regulate mobile phone use. The influence which the teacher participants referred to was the school policy on mobile phones.

Comments from teacher participants indicated that those who were in favour of developing the use of mobile phones in school also recognised other psychosocial factors such as the difficulty of regulation, the potential risks, compatibility with

teaching and learning and the relative advantage to the pupil or teacher, as limiting the use of mobile phones.

Pupil participants were clear that mobile phones should be allowed in school but were also mindful that they should not be used in the teaching and learning context. This awareness only led to their acceptance of the regulation of mobile phones. It did not appear to influence pupils' use of mobile phones during teaching and learning.

The greatest regulation of use for pupils was based on their own personal values. These influences regulated their use from identified e-safety issues however it did little to deter pupils from using them in the school. The desire to be included within a peer group appeared to be a greater influence than value sets on their actual use.

Possibly the greatest influence on the regulation and use of pupils' mobile phones was that of being available. This was being available to social groups but appeared primarily as availability to parents. This influence meant that boundaries of time and space were blurred which in turn appeared to influence the use of the phones.

The data suggests that availability of parent participants to pupils, and pupil participants to parents is a reciprocal arrangement which influences the regulation of the pupil participants' mobile phones. The parent participants openly encouraged pupils to take mobile phones into school so that they could be contacted. This extended to the disregard of school rules and was regulated more by parental understanding of the pupil and the development of pupil's personal values.

The parent participants relied on pupils' to self-regulate their use by instilling positive values within the pupil. The parent participants identified that they regulated some use by financial means and were less influenced by their pupil's peer group when it came to the cost of a phone but peer groups did influence the 'gadgets' that the phone had which in turn influences how it is used.

Parent participants agreed that the phone had little use in the teaching and learning context and relied on the pupil's self regulation and school rules to monitor use within this context.

Appendix 13 – Consent from

Parental Consent:

I understand the purposes of the research and know that I can withdraw consent for myself or my child at any time.

Name_____

Signature_____

Date_____

Pupil Consent:

I understand the purposes of the research and know that I can withdraw consent at any time.

Name_____

Signature_____

Date_____

Appendix 14 – Submission of ethical considerations to the University of Birmingham

Form EC2 for POSTGRADUATE RESEARCH (PGR) STUDENTS

MPhilA, MPhilB, MPhil/PhD, EdD, PhD IS

This form MUST be completed by ALL students studying for postgraduate research degrees and can be included as part of the thesis even in cases where no formal submission is made to the Ethics Committee. Supervisors are also responsible for checking and conforming to the ethical guidelines and frameworks of other societies, bodies or agencies that may be relevant to the student's work.

Tracking the Form

- I. Part A completed by the student
- II. Part B completed by the supervisor
- III. Supervisor refers proposal to Ethics Committee if necessary
- IV. Supervisor keeps a copy of the form and send the original to the Student Research Office, School of Education
- V. Student Research Office – form signed by Management Team, original kept in student file.

Part A: to be completed by the STUDENT

NAME: Mr Christopher Billington

COURSE OF STUDY (MPhil; PhD; EdD etc):
EdD

POSTAL ADDRESS FOR REPLY:

CONTACT TELEPHONE NUMBER:

EMAIL ADDRESS:
chrisbillington

DATE:
6/03/09

NAME OF SUPERVISOR:
Dr. J. Yeomans

PROPOSED PROJECT TITLE:

Psychosocial influences on the use and regulation of Mobile Phones in High Schools. Perspectives from children, schools and families, an exploratory case study approach.

BRIEF OUTLINE OF PROJECT: (100-250 words; this may be attached separately)

The project will involve year 10 pupils, parents of those pupils and teachers. A pilot study will be conducted followed by three case studies. 4 high schools will take part. The children and parents (2 children and 2 adults) from each school will take part in a face to face interview. The teachers will be asked to complete a questionnaire. The purpose is to identify psychological and social influences on the use of mobile phones and their regulation.

The data gathered will be analysed and be subject to cross case synthesis. The subject of the study is the focus rather than the individual cases and as such no school or individual will be critically analysed.

MAIN ETHICAL CONSIDERATION(S) OF THE PROJECT (e.g. working with vulnerable adults; children with disabilities; photographs of participants; material that could give offence etc):

The main ethical consideration are:

Conducting a fair interview and being clearly representative of views – transcripts will be available.

It will also be important, due to the small number of children and parents taking part, to ensure their identity is kept anonymous so that people within the research can not identify each other and people outside of the research can not identify them.

It is also important not to use any of the information to force policy change or for the information gained to be used in any subversive way.

The interviews with the children will need to be open. However it must be clear to the children that reports must be made if there is evidence of self-injurious or harmful behaviour to either themselves or other individuals.

RESEARCH FUNDING AGENCY (if any):
N/A

DURATION OF PROPOSED PROJECT (please provide dates as month/year):
03/09 – 09/09

DATE YOU WISH TO START DATA COLLECTION:

18th March 2009

Please provide details on the following aspects of the research:

1. What are your intended methods of recruitment, data collection and analysis? [see note 1]

Please outline (in 100-250 words) the intended methods for your project and give what detail you can. However, it is not expected that you will be able to answer fully these questions at the proposal stage.

Recruitment will take place by informing all parents in year 10, in the participating schools, that the research is taking place and they may be contacted, a number will be provided at this stage for parents and children to withdraw.

After making contact with any parent via telephone, then consent will be requested to send them a more detailed letter which will outline for consent for themselves and their child.

At the start of each interview each participant will be reminded of the voluntary nature of consent and their ability to withdraw at any stage.

The data gathered will be the experiences and interpretations of the individuals. Qualitative data will be gathered from individual children via semi-structured interviews which will seek to explore their perceptions of factors which influence their use of mobile phones in schools and the regulation of mobile phones in schools.

Children and parents will be requested to take part in a semi-structured interview.

Teachers will be asked to complete a questionnaire.

School documentation will be scrutinised.

The results will be put into a word table and coded.

2. How will you make sure that all participants understand the process in which they are to be engaged and that they provide their voluntary and informed consent? If the study involves working with children or other vulnerable groups, how have you considered their rights and protection? [see note 2]

Child and parent participants will be recruited via purposive sampling. A letter will go out to all year 10 students and their parents indicating that they may be contacted by the school's educational psychologist and if they do not wish to participate a telephone number will be given for them to ring. The year 10 head of year will then be asked to identify some representative year 10 students who own a mobile phone and who would be able to take part in an interview. Contact will then be made with their parents as to whether they wish to take part, they will then receive a more

detailed letter about the research, its aims, the purpose and the dissemination of information. At the start of the interview, the participants will be asked if they still want to carry on with the research and they will be informed that they can withdraw consent even after the interviews have taken place.

The possible audience which the outcomes might be disseminated to will also be explained.

3. How will you make sure that participants clearly understand their right to withdraw from the study?

Before and after each contact prior to the interviews the right to withdraw will be mentioned.

The purposive sampling will highlight any learning need that need to be taken in to account.

4. Please describe how you will ensure the confidentiality and anonymity of participants. Where this is not guaranteed, please justify your approach. [see note 3]

Participants will remain anonymous. The researcher will get a list of several names, but the individuals who are chosen will not be revealed to the school staff. Interviews with parents will take place off school grounds and as I am the educational psychologist for each school I am recognised as working with different children within the schools for a variety of reasons.

The confidentiality of participants will be increased by not using the real school name in the final report.

As two of the schools are single sex schools, the gender of the participant will not be revealed in the individual case study report but will be mentioned in the overall cross case synthesis if appropriate.

There is the potential for children to be able to identify their parent's views and vice-versa. To reduce this possibility, none of the comments made by parents and their children will be matched or directly compared.

Teachers will not be asked for any identifying information e.g. head of year 10 views.

The cross-case conclusions will be anonymous.

5. Describe any possible detrimental effects of the study and your strategies for dealing with them. [see note 4] *This may apply in circumstances where*

methods involve the use of e.g. video or photographs that could identify participants, or in the case of interviews where the status / job role of the interviewee will enable them to be identified by others.

There are several ways in which participants may be identified. Prior to, during the process of and after the interview.

Prior to – risk - children's names who wish to participate becoming public knowledge. To address this, the school will have only 1 member of staff who will identify a purposive group sample. The researcher, (and possibly the head of year 10) will be the only person who knows who has agreed to take part in the research. Names and numbers of responses will only be discussed between the nominated member of staff and the Educational Psychologist (researcher).

During the process of the interview – risk – children may be identified when leaving or returning to class to attend the interview. To address this – interviews will be staggered to ensure that they are not back to back and children will not meet during the cross over phase. Interviews will also be scheduled into the timetable so that they last for one lesson and the children can take themselves off to the designated room without being 'taken out of classes'. Children taking part and all staff will be briefed the mornings of the interview.

After – the risk is that individuals discuss what they have mentioned in the interview – To address this; the participants will be reminded of confidentiality which will be outlined at the beginning of each interview.

6. How will you ensure the safe and appropriate storage and handling of data?

I will have sole access to this. A text processor will be asked to transcribe the audio tapes and storage of this will be on a private hard drive. None of the raw data will be emailed unless the email facility is secure i.e. within [REDACTED].

7. If during the course of the research you are made aware of harmful or illegal behaviour, how do you intend to handle disclosure or nondisclosure of such information? [see note 5]

Open disclosure during interview – procedure: stop the interview ensure that the child knows that I must share information with others, listen to the child (not promise any secrets or ask any leading questions), reassure the child, record details immediately, ensure child has a responsible adult to sit with whilst I contact <name> (child protection officer) and Head Teacher, the school's child protection officer can then co-ordinate contacting the police and parents (unless clearly inappropriate to do so).

Open disclosure at any other time - listen to the child (not promise any secrets or ask any leading questions), reassure the child, record details immediately, ensure child

has a responsible adult to sit with whilst I contact <name> (child protection officer) and Head Teacher, co-ordinate contacting the police and parents (unless clearly inappropriate to do so).

Unintentional disclosure of information which may be harmful to others or self – I will apprise the participants that I have a duty to report any such disclosure to an appropriate person prior to the focus group starting. If unintentional disclosure happens even after this, I will make the school's child protection officer aware of the disclosure.

Unintentional disclosure of other information – e.g. an illegal download of music files, accessing non-age appropriate websites. After giving each disclosure individual careful thought and consideration I would make notes on reasons for not making this a disclosure (otherwise I would follow procedure for 'Unintentional disclosure of information which may be harmful to others or self') and pass these notes to <name> and course supervisor for a second and third opinion.

General – Each session will finish by saying: "If you are concerned by any of the issues that have been discussed here today, then you can talk with me after we end or you can contact either of the following supports" :

Each child who takes part in the research will be given information about support that is offered by the school for general issues e.g. bullying and also support that is offered by other agencies e.g. Lancashire's confidential advice and guidance line, the Child Exploitation Online Protection Centre website address.

8. If the research design demands some degree of subterfuge or undisclosed research activity, how have you justified this and how and when will this be discussed with participants?

N/a

9. How do you intend to disseminate your research findings to participants?

I will provide a copy of the research findings as standard and offer a full copy of the report when asked.

Appendix 15 – Unique contributions full report

Cross case analysis – Unique contributions

In this section the qualitative evidence gathered from semi-structured interviews will be presented alongside the qualitative data gathered from the questionnaire. All unique contributions from the teachers, parents and pupils will be presented.

Unique contributions - responses from one case study which were not mentioned in the other case study.

It only requires one person to mention an influence for it to be identified as a unique contribution so when examining them it is important to identify which contributions are replicated by two or more participants within the case study, and which ones are not. Each insert of data has either a letter N or R in brackets after it. These are to indicate whether the data was or was not replicated within the case study. If the data has an '(R)' then it shows that two or more people from the same study participant group from the same case study made reference to it.

Key: (N) - Not replicated within the same cases study
(R) - Replicated within the same case study

Case study 1 is presented first, followed by case study 2. The effects matrices are the same as the case study matrices. The first pattern code reported is Teaching and Learning. This is followed by Value Sets and then Availability.

Effect of Teaching and Learning on Regulation and Use

Teaching and learning (pattern code)

- *reference to the context of teaching and learning (predominantly classroom based or 'timetabled time' not including lunch or break time).*

The effects matrix has been developed based on the replicated data. Coded psychosocial factors are separated into the three case study participant groups. Each descriptive and interpretative code is reported in the following sections.

- Relative advantage
- Compatibility
- Pedagogy

Effect of Teaching and Learning on Use and Regulation - Cross Case Analysis – Unique contributions Case Study 1

	Relative Advantage	Compatibility	Pedagogy
Pupils		Used for recording creative work – influences pupil use (N)	People are used to mobile phones – influences pupil use & influences teacher regulation (N) Focus on learning in yr 10 – influences pupil use. (N)
Teacher			
Parent	Has seen it used on field trips to record information – influences parent regulation (N)	Use of internet is not needed as school has fixed computers – influences parent regulation (N)	

Relative Advantage

– the belief that students and / or teachers benefit more from the inclusion of mobile phones in school, than in past practices.

One parent participant reported that they had seen the use for mobile phones when the pupils had been on a field trip. The mobile phone had been used to record images. There was no evidence to suggest that this was for fun, personal interest or for academic purposes.

Compatibility

– feeling comfortable or uncomfortable with the pedagogical approach used in having mobile phones in school.

A specific reference to using mobile phones in school was mentioned within the pupil participants. The recording of creative work is possible and this influences the use of the mobile phone.

Yeah, not of the teacher, but like if there is something has happened and you want to take a photo of it, but if we're say when you do food tech if you like want to take a photo of something you have made, then you can there's no thing to say you can't the teacher won't tell you off.

(Pupil case study 1)

One response from the parent participants in case study 1 identified an issue which influenced the regulation of mobile phones. The use of the internet was not seen as an important feature of the mobile phone as the approaches used by the school was to allow children access to the internet via school computers. This view influenced parental regulation.

I feel that they don't really need to be able to access the internet, they have a lot of computers in school in the classrooms they can do research on that in that particular lesson particular subject or whatever, they don't really need it (internet) its not an essential tool.

(Parent case study 1)

Pedagogy

– Anything relating to the principles, practice or profession of teaching.

The differences in pedagogy were found in the pupil participants. None of the data from the parent and teacher participants was identified as being unique.

The response from the pupil study participants shows that environmental factors influence the regulation and use of mobile phones.

I think we've just got used to it because a lot of people do have them out at break and lunch and are texting or whatever on them. erm so I think they've just sort of given up but they don't stand for it in lessons.

(Pupil case study 1)

Yr 10 like now I'm doing a lot of work and you have to actually concentrate otherwise you wont get very good marks in you G.C.S.E.'s and erm like you have to do all your coursework and stuff like that and yr 11 you are doing the exams.

(Pupil case study 1)

Effect of Value Sets on Regulation and Use

Value sets (pattern code)

– these are personal to the individual in the context of identity and belonging. Self knowledge and individual responsibility.

An effects matrix has been developed based on the cross case data. Coded psychosocial factors are separated into the three case study participant groups. Each descriptive and interpretative code is reported in the following sections.

- Peer Interaction
- Financial
- E-safety
- Well being

Effect of Value Sets on Use and Regulation - Cross Case Analysis - Unique contributions Case Study 1

	Peer Interaction	Financial	e-safety	Well being
Pupil				Being without phone challenges identity and belonging and elicits physical reaction – influences pupil use (N)
Teacher	Peer interaction can cause disputes – influences teacher regulation (N)		Theft of phones – influences teacher regulation (N)	
Parent	Peer / social expectation that everyone has a phone – influences parent regulation (N)			Reactions to mobile phone being withdrawn – influences parent regulation (N) Dependency of mobile phone – influences parent regulation (N) Trust in individuals responsibility to approach parent if wellbeing effected – influences parent regulation (N)

Peer Interaction

– an act performed with regards to peers. This includes social status, fashion, friendships and relationships between people.

None of the data from the pupil participants was identified as being unique.

One response from the teacher participants identified that pupil's use of their mobile phone with their peers could cause disputes and as such influenced the regulation of mobile phones.

I feel that they (mobile phones) create tension / conflict and allow ongoing revisiting of the original dispute / falling out.
(Teacher 2 case study 1)

One response from the parent participants reported that the peer expectation was that everyone had a phone. This was identified as an influence on the regulation of mobile phones.

I think it's just you have to be seen to have a mobile phone, I suppose peer pressure. Everyone expects you to have a mobile phone...
(Parent case study 1)

Financial

– The cost of the technology. This includes reference to the packages e.g. unlimited texts

None of the responses from the Parent, Teacher or Pupil participants were unique to case study 1.

e-safety

- *The risks associated with the use of 'e-technology'. This includes risks of Content, Contact, Commerce and Culture.*

There were no identified differences between the parent and pupil participant's views.

There was one difference identified between the cases in the teacher participants.

The risk of a mobile phone being stolen from the teacher after confiscating it from a pupil influenced the regulation of mobile phones.

Theft of confiscated phone from front of class in prior establishment makes me very reluctant to remove phones.

(Teacher 7 case study 1)

Well Being

- *social and emotional health of individuals.*

The pupil and parent participants' responses to questions elicited differences with regard to well being.

A response from the pupil participants reported that being without their mobile phone challenged their identity and made them feel uneasy. This influenced the use of mobile phones.

The parent participants also identified the influence that mobile phones had on pupil's well being which influenced parental regulation.

Again in hindsight I think we should have regulated it a bit more, last weeks little outburst we should have regulated it more but only because she's become dependant on it. I don't think there are any other problems with it. It's just that she's dependant on it and that's not good I don't think.

(Parent case study 1)

Trust and openness of relationships was also cited as an influence on regulation.

We have to trust each other you know we all like our own privacy but if I feel there is anything strange going on or if she was upset for any reason or kept switching her phone off, or if there was anything unusual, any unusual behaviour then I would say I think I need to look at something, I wouldn't like to go behind her back to do that, we've got quite a good relationship, we do talk to each other.

(Parent case study 1)

There was one reported incident where the pupil's reaction to the mobile phone being taken away was one of 'hysteria'.

Obsessive behaviour, very much so. We did try and take it off her last week for half an hour and she went absolutely hysterical. Which worried me a lot.

(Parent case study 1)

Effect of Availability on Regulation and Use

Availability (pattern code)

- the networking of an individual on to a conceptual networked grid so that they are available and feel that they are 'more available' as a consequence of technology.

When the data was placed into an effects matrix which collated all the data which was unique to case study 1, a pattern of use and regulation with regards to availability emerged. Each descriptive and interpretative code is reported in the following sections.

- Parenting
- Organisation
- Safety
- Blurring Boundaries
- Digital divide

Effect of Availability on Use and Regulation - Cross Case Analysis - Unique contributions Case Study 1

	Parenting	Organisation	Safety	Blurring Boundaries	Digital Divide
Pupils					Mobile phones have always been a part of children's life – influence child use (N)
Teachers	'emergency calls' to or from home – influences pupil use and teacher regulation (N)			Children communicate between classrooms – influences teacher regulation (R) Children communicate between school – influences child use (N)	Children not able to put things off – influences child use (N)
Parents					

Parenting

– the facilitation of the extension of a wider reach of ‘the home’ beyond the physical house.

None of the pupil and parent participant responses were unique to their case study.

One comment from the teacher participants which was not replicated referred to the use of the mobile phone in an emergency. This was associated with influencing how the teacher regulated use in school.

Occasionally a student will receive a text or call in lesson from a parent or carer about news, emergency or crisis at home e.g. mum going into labour, dogs had puppies, brother sent to prison etc.

(Teacher 12 case study 1)

Organisation

– the co-ordination of people and resources.

None of the pupil, teacher and parent participant responses were unique.

Safety

– issues relating to danger or risk of injury; or freedom from danger risk or injury

None of the parent, pupil and teacher responses with regards to safety were unique.

Blurring Boundaries

– the crossing of physical, time and conceptual boundaries.

None of the pupil and parent participant responses were unique.

The teacher participants identified how pupils used their mobile phones in school which influenced the teacher perception and subsequent regulation of the mobile phone.

An un-replicated comment made reference to use of mobile phones between different schools.

A comment which was repeated by two or more teachers, identified that the teacher participants believed that children used their mobile phone to contact others within the same school. This was seen as having an influence teacher regulation.

Pupils seem to text each other constantly (form of gossip - used to be passing notes in class - now can be done between classrooms!)
(Teacher 12 case study 1)

Digital Divide

– An identified difference between two or more groups in relation to understanding or using technology

None of the responses by the parent participants were unique.

A comment from the pupil participants believed that because mobile phones have always been a part of their life, that this influenced their use of them. This view was not replicated within the case study.

A comment within the teacher participants which was not replicated believed that children were influenced to use their mobile phones because they were unable to 'put things off'. This influenced the teacher regulation of mobile phones.

Summary of Unique contributions in Case Study 1

There was only one comment unique to case study 1 which was repeated by one or more individuals. This comment was from the teacher participants and related to how mobile phones blurred boundaries and the influences that this had on regulation of mobile phones.

Cross Case Analysis - Unique contributions Case Study 2

Effect of Teaching and Learning on Regulation and Use

Teaching and learning (pattern code)

- *reference to the context of teaching and learning (predominantly classroom based or 'timetabled time' not including lunch or break time).*

The effects matrix has been developed based on the replicated data. Coded psychosocial factors are separated into the three case study participant groups. Each descriptive and interpretative code is reported in the following sections.

- Relative advantage
- Compatibility
- Pedagogy

Effect of Teaching and Learning on Use and Regulation - Cross Case Analysis - Unique contributions Case Study 2

	Relative Advantage	Compatibility	Pedagogy
Pupils			School rules – influence teacher regulation and influence pupil use. (N)
Teacher	Some can't see any advantages but feel there should be some – influences teacher use and teacher regulation (N).	More negative than positive outcomes – influences teacher regulation. (N)	<p>Different conceptual understanding of use – influences teacher regulation. (N)</p> <p>Concerns with technology which are less easily regulated – influences teacher use. (N)</p> <p>Teachers follow policy guidance on regulation – influences teacher regulation. (R)</p>
Parent			

Relative Advantage

– the belief that students and / or teachers benefit more from the inclusion of mobile phones in school, than in past practices.

One view within the teacher participants identified that although it was felt that mobile phones held no relative advantage, mobile phones should be able to be used to relative advantage.

You can't turn back the clock; the technology is here to stay. The issue is how to turn the problem into potential pluses.

(Teacher 1 case study 2)

Compatibility

– feeling comfortable or uncomfortable with the pedagogical approach used in having mobile phones in school.

The data from the teacher participants shows that there is a view that although mobile phones are in school and might be used, there are currently more negative outcomes than positive ones.

I know that we need to embrace new technologies but in school phones have more negative than positive outcomes.

(Teacher 2 case study 2)

Pedagogy

– Anything relating to the principles, practice or profession of teaching.

One response from the pupil participants which is also reported in the teacher participant responses identified that teachers were trying to follow the school rules. It was thought that this influenced teachers' regulation of mobile phones.

The ones who go hard on it it's probably because they are just trying to stick to the school rules and that.

(Pupil case study 2)

A question as to what constituted as 'use' of a mobile phone was posed within the teacher participants as an issue which faced schools and teachers in their judgement of how and when to regulate mobile phones. It was also recognised that mobile phone technology was less easy to regulate and this influenced teacher use of them in their practice.

Replicated responses in the teacher participants recognised that the school policy and guidance was followed. This influenced teacher regulation of mobile phones.

I hope that my personal views don't influence me too much. I follow school regulation.

(Teacher 2 case study 2)

I just follow the school rule - no unauthorised use. If children ignore that then I'll confiscate (usually I give a warning and if that ignored confiscate).

(Teacher 4 case study 2)

Effect of Value Sets on Regulation and Use

Value sets (pattern code)

– these are personal to the individual in the context of identity and belonging. Self knowledge and individual responsibility.

An effects matrix has been developed based on the cross case data. Coded psychosocial factors are separated into the three case study participant groups. Each descriptive and interpretative code is reported in the following sections.

- Peer Interaction
- Financial
- E-safety
- Well being

Effect of Value Sets on Use and Regulation - Cross Case Analysis - Unique contributions Case Study 2

	Peer Interaction	Financial	e-safety	Well being
Pupil				
Teacher		Teachers have to balance non-compulsory use of phones in lessons as they can't assume everyone can afford one with the gadgets to be used for learning – influences teacher use. (N)		An understanding that mobile phones are part of youth culture and are important to pupils– influences teacher regulation. (R)
Parent	Belief that child is with friends and does not need to text them – influences parent regulation. (N)			'Hate' being without phone influences belief that children also need to be with their phone – influences parent regulation. (N)

Peer Interaction

– an act performed with regards to peers. This includes social status, fashion, friendships and relationships between people.

None of the data from the pupil and teacher participants were identified as being unique to the case study.

One response from the parent participants reported that as the pupil is with their friends whilst in the school environment then the expectation that the pupil would need to use the mobile phone in school was less, this influenced the parental regulation of the mobile phones.

Financial

– The cost of the technology. This includes reference to the packages e.g. unlimited texts

None of the responses from the Parent or Pupil participants were unique to case study 2.

One comment from the teacher participants was different and was seen to influence the use of mobile phones. It was recognised that the teacher had to balance the use of mobile phones as it was not right to assume that every pupil had one which could be used as part of a lesson.

cost - non compulsory use in lessons to ensure no pressure of students feeling they should have phones.

e-safety

– The risks associated with the use of ‘e-technology’. This includes risks of Content, Contact, Commerce and Culture.

There were no unique contributions made by the parent, teacher or pupil participants.

Well Being

– social and emotional health of individuals.

One parent commented that the effect of wellbeing was not limited to the wellbeing of the pupils but also to the wellbeing of parents.

...but I've gone out and I've left my phone at home and I hate it because I think should the school...all I think about is the pupils that should they want to contact me the school contact me.

(Parent case study 2)

The parental comments which have been coded as relating to well being indicated an emotional discomfort for the parent at the thought of themselves or the pupils leaving the home without a phone, this was seen as influencing regulation of mobile phones.

The teacher participants identified that well being influenced their regulation of mobile phones. More than one teacher cited the importance of the mobile phone to the pupils as being a factor which influenced their regulation.

I realise how important a mobile phone is to the individual and if the individual is co-operative then the phone is usually returned either at the end of the lesson, or day.

(Teacher 6 case study 2)

Effect of Availability on Regulation and Use

Availability (pattern code)

- the networking of an individual on to a conceptual networked grid so that they are available and feel that they are 'more available' as a consequence of technology.

When the data was placed into an effects matrix which collated all the data which was different between both case studies, a pattern of use and regulation with regards to availability emerged. Each descriptive and interpretative code is reported in the following sections.

- Parenting
- Organisation
- Safety
- Blurring Boundaries
- Digital divide

Effect of Availability on Use and Regulation – Cross Case Analysis - Unique contributions Case Study 2

	Parenting	Organisation	Safety	Blurring Boundaries	Digital Divide
Pupils					Children have their phones on all the time – influences pupil use. (N)
Teachers		<p>Understanding that mobile phones are used to contact home – influences teacher regulation (N)</p> <p>Teachers take advantage of children's mobile phones to sort out after school clubs – influences pupil use and influences teacher regulation (N)</p>			Personal use is for emergency only and school can do this so they are not needed – influences teacher regulation (N)
Parents					

Parenting

– the facilitation of the extension of a wider reach of ‘the home’ beyond the physical house.

None of the pupil, teacher and parent participant responses were unique to the case study.

Organisation

– the co-ordination of people and resources.

None of the pupil and parent participant responses were unique to the case study.

One comment from the teacher participants recognised that pupils used their phone to contact home. This was identified as influencing teacher regulation of mobile phone.

One comment from the teacher participants referred to teachers using the pupil's mobile phones to their advantage. It was identified that teachers can get children to use their phone to organise arrangements for after school clubs.

I think that they can be useful for contacting parents when students are involved in after school activities.

(Teacher 9 case study 2)

Safety

– issues relating to danger or risk of injury; or freedom from danger risk or injury

None of the parent, pupil and teacher responses with regards to safety were unique to the case study.

Blurring Boundaries

– the crossing of physical, time and conceptual boundaries.

None of the pupil, teacher and parent participant responses were unique to the case study.

Digital Divide

– An identified difference between two or more groups in relation to understanding or using technology

None of the responses by the parent participants were unique to the case study.

A comment from the pupil participants identified that keeping the mobile phone on all the time influenced the use of the mobile phones.

A comment from the teacher participants identified that the mobile phone should be used for emergencies only. This influenced the teacher regulation of mobile phones in high school.

Summary of Unique contributions in Case Study 2

Two of the comments unique to case study 2 were repeated by two or more people. The first was in relation to well being. The teacher participants recognised that mobile phones were important to pupils and were part of youth culture. The second repeated comment also came from the teacher participants and was also reflected in one comment from the pupil participants and it was with regards to Pedagogy. Teachers follow policy guidance on regulation and this was seen to influence their regulation and use of mobile phones.